Chemical Week

July 4, 1953

Price 35 cents

Pentagon's research problem: how much "pure," how much "guided," how much "farmed out"? . . p. 11

Cyanamid's Kilby: "You can't change people, so channel them; that's key to teamwork" . . p. 16

Teach the chiefs and you sell the firemen—a gimmick to sell extinguisher chemicals . . . p. 30

Water-dilutable pigment dispersions surge in on textile printing market . . . . . p. 38

At first basic materials show, industries tell each other what's new, what's hot . . . . . p. 42

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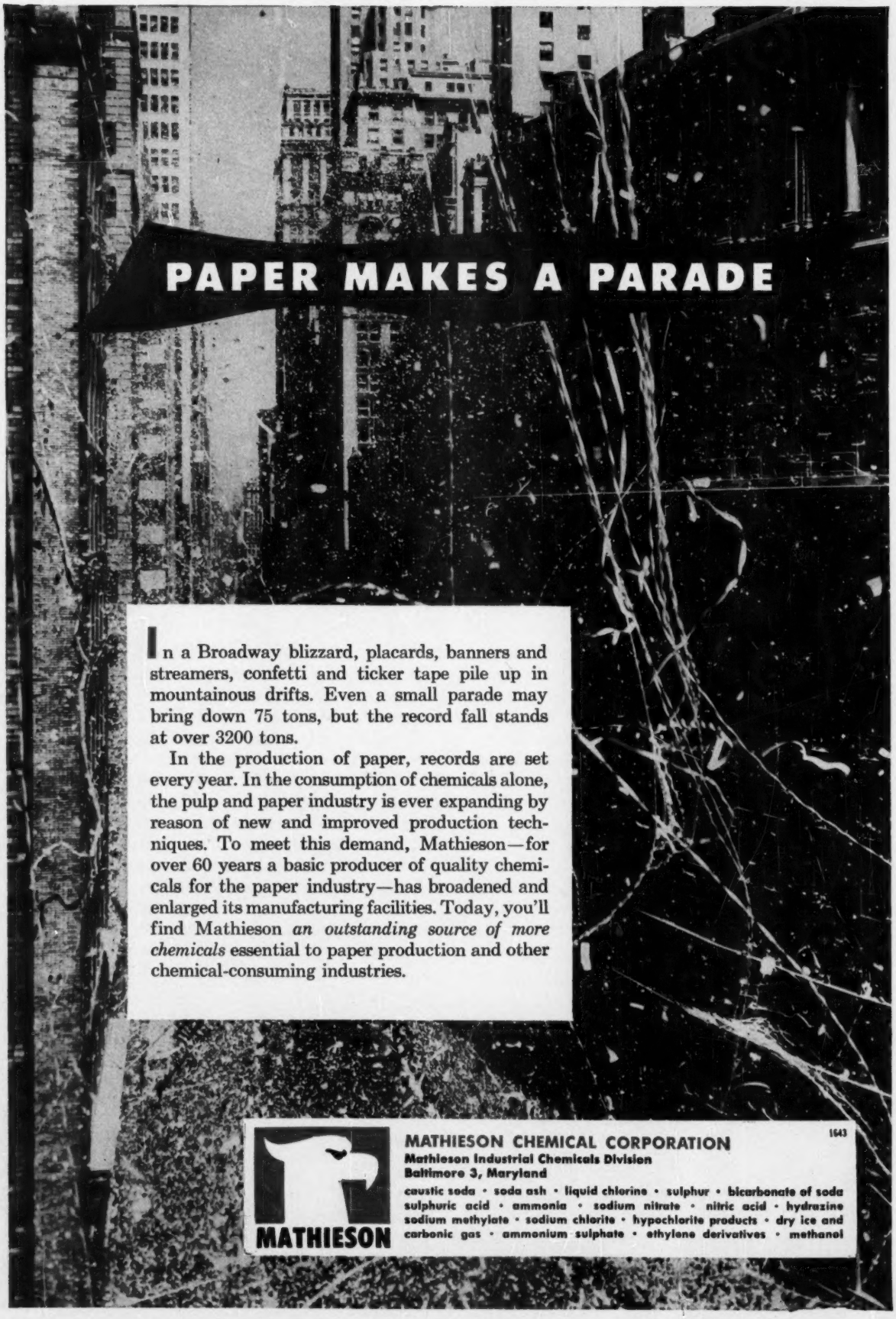

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Chemical Week

Volume 73 • July 4, 1953 • Number 1

OPINION	2	RESEARCH	36
NEWSLETTER	7	PRODUCTION	42
BUSINESS & INDUSTRY	11	MARKETS	47
DISTRIBUTION	30	SPECIALTIES	54

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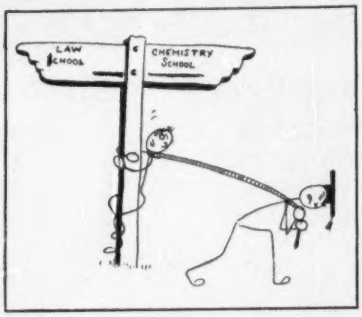
OPINION . . . . . .

Love Those Greenbacks!

To THE EDITOR: . . . The cartoon I am enclosing (*see cut*), I sketched



after I had read this note in the Chicago Tribune (*June 4*): "It is a rather sad sack of a lawyer who can't make $15,000 a year . . ."

Those fifteen thousand bucks a year,
Say, don't they look inviting?
Professions yielding that much dough
Need do no proselyting.

Needless to say, I'd prefer to remain anonymous . . .

NAME WITHHELD

On Being "Shoved About"

TO THE EDITOR: I wish to compliment you on your excellent study and treatment of the poly bread additives case (*May 9*) . . . It was particularly pleasing to note your conclusion that the chemical industry must inform the public about the good that it does. It is surprising that that lesson has not yet been learned . . .

I hope that *finis* has not been written to the case . . . as you suggest . . . The subject may, I hope, come up at a later date. I'd appreciate your toying with the following bits of "unbiased opinion" . . .

(1) The Bread Standards are not a reflection of baking industry opinion. The list of polyoxyethylene ester users (in tonnage quantities) reads like a who's who of baking. Many who do not use them would start tomorrow if the FDA gave the nod.

(2) Bakers have been reluctant to identify themselves with the materials for fear of bad publicity. In the early part of the hearings the Bakers Assn. did endorse polys . . . asked that they be permitted as optional ingredients if they were not a hazard. (The association did not feel qualified to pass on questions of pharmacology that had been raised by competitive —i.e., shortening—interests.)

Bad publicity resulted from stories fed to newspaper columnists . . . scared bakers so badly that the association reversed itself.

(3) FDA requested Glyco, Atlas, Vanderbilt, etc., *not* to take their story to the press. The "defendants" were thereby cut from their last out —education of the public—at the risk of displeasing the inquisitor.

(4) Standards hearings are . . . to establish standards of *identity* . . . do not necessarily affect quality. Exclusion of an ingredient from one standard is not supposed to place a stigma on it. Other parts of the law provide for materials that are health hazards.

(5) FDA's Crawford requested manufacturers to exclude these materials from all foods, later explaining that he could not legally forbid their use in nonstandardized foods. Such expression of personal feeling by a policy maker is close to attempted intimidation when directed at an already cowering industry that his organization polices.

(6) As long as FDA finds its own facts and its own staff presents testimony at hearings over which it presides, as long as it also writes its own rulings and polices them, hindered only by courts that are actually permitted to question very limited aspects of standards promulgated under the administrative procedure, there is little hope that the food industry will fight for any rights it has.

Rather, it will salaam at each opportunity.

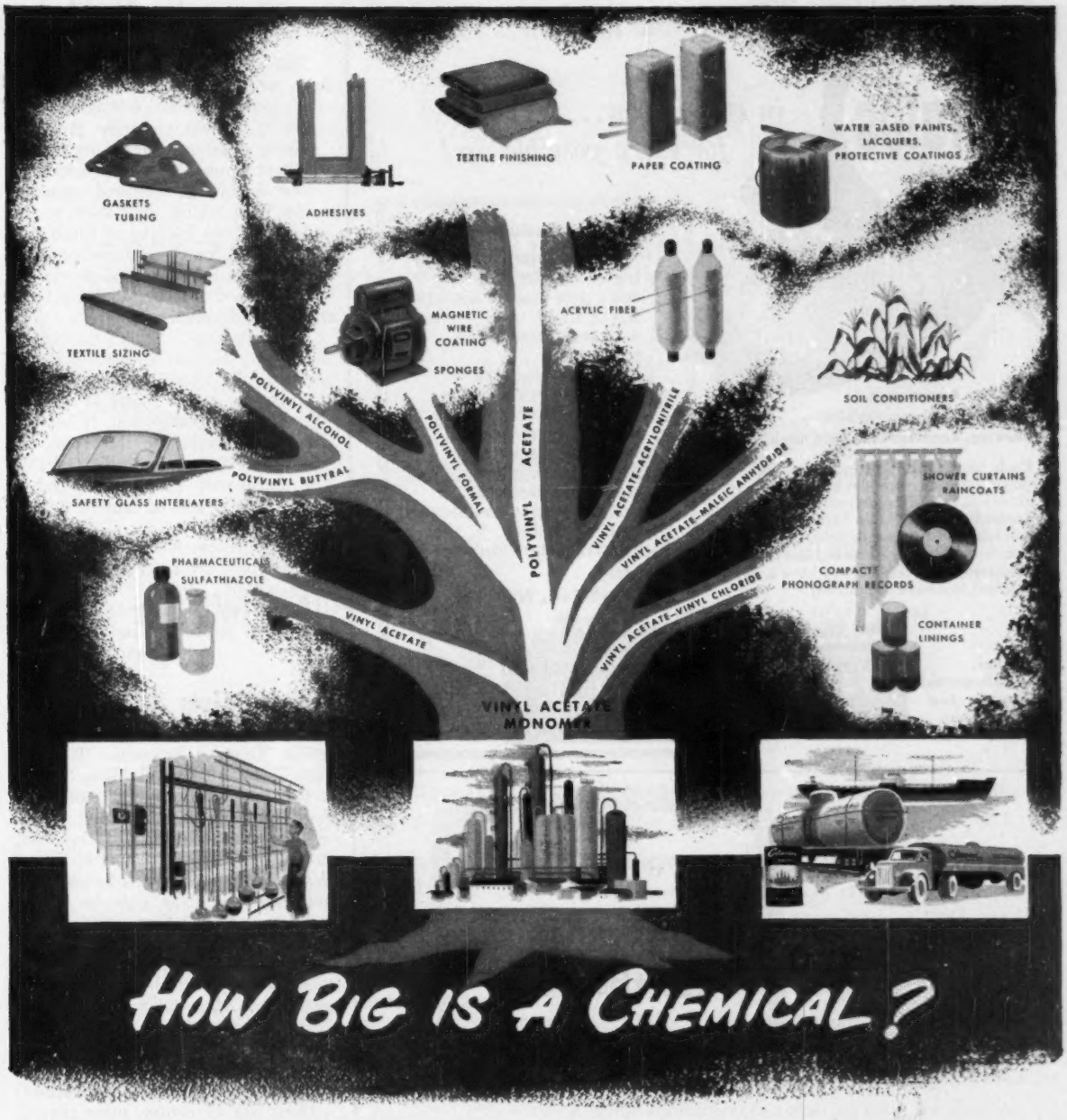
(7) The sticky case of FDA is founded on personal opinion of bureaucrats who chose to, and may, ignore the demonstrated public preference for bread with polys. It will not concede harmlessness though hundreds of thousands of dollars have been spent to detect either chronic or acute toxicity.

FDA officials bolster their argument with such phrases as "deceptive to consumers" and "harmlessness has not been proved"; they offer no proof of deception nor criterion for harmlessness. They buttress their own with the testimony of competitive interests.

In spite of their technically shaky case they find the baking industry an ideal field for furthering their cause of precertification of chemicals for food.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.



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44 STRATEGICALLY LOCATED WAREHOUSES

OPINION . . . . . .

The shortening companies have been willing to furnish the ammunition against chemical softeners to advance their own glyceride products.

Being sensitive to publicity involving controversy over their products, bakers discourage chemical manufacturers from taking their story to the public. Baking industry journals will not crusade for the progressive attitude that has permitted processors of other foods to capitalize on technological advances.

This is a stew in which the baking industry finds itself as a result of not trying to determine what is best for the industry and working in a forthright manner to that end. It has become a pawn to the shortening industry and an empire-building FDA.

Unfortunately the chemical industry is being shoved about in the controversy.

I am a research director . . . and the foregoing are facts I think should be presented . . .

I would ask, however, that you refrain from publishing my name . . .

NAME WITHHELD

Dextran Gets Army Nod

TO THE EDITOR: I have read the news article "Dextran Processes: They all Vary, They All Grow" (*May 9*) . . . It is literally true, as you said, that there is no substitute for blood plasma or for whole blood . . . However, virtually the only indication for blood plasma is the treatment of shock . . . and then it is given only for its osmotic properties. From this standpoint . . . dextran accomplishes all of the osmotic functions of plasma . . . does not carry with the hazards of reactions . . . the danger of hepatitis . . . the armed forces have recently banned the use of plasma . . . have instructed surgeons to use dextran in its place whenever available . . .

There are, of course, other plasma volume expanders . . . gelatin has found only limited acceptance, PVP has not yet been cleared by the Food & Drug Administration . . .

A. K. HAMILTON
Vice-President
Commercial Solvents Corp.
New York, N. Y.

No Crusader, Him

TO THE EDITOR: It seems to I that Mr. R. L. Matthews *(June 13, Opinion)* should be encouraged in his crusade to eliminate the objective form of pronouns such as "whom" and I would like to give he my support.

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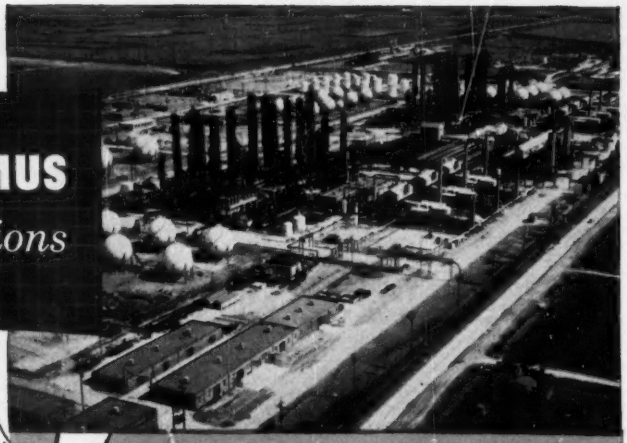

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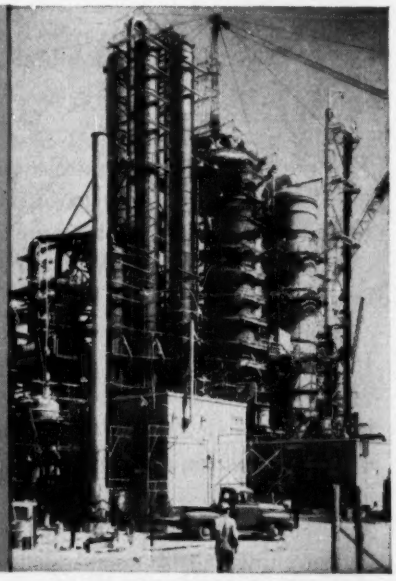

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NEWSLETTER

Another step taken: The House of Representatives late last week voted the Administration's bill to sell the government's synthetic rubber plants to private industry. Similar legislation was pending this week in the Senate, where it is being studied by the Banking Committee.

The House overrode Rep. Wright Patman (D., Tex.), who wanted to pigeonhole the bill because, in his opinion, it tends to favor large firms over small, and because it doesn't give Congress the privilege of affirming or vetoing sales proposals.

The Senate bill calls for a minimum plant output of 400,000 tons/year. This figure was criticized as too low by Charles F. Johnson, president of Endicott Johnson Corp. (boots, shoes), who said that as a small user he may be handicapped in obtaining his synthetic rubber needs. He called for a 650,000-ton minimum.

•

Next unit to go up at Tuscola, Ill., site of National Petrochemical's plant, which came onstream last week, is a 50,000 tons/year anhydrous ammonia plant to be built by National Distillers, corporate parent of the petrochemical firm.

Nitrogen will be obtained by fractionation of liquid air, providing 75 tons/day of by-product oxygen. Hydrogen will come as a by-product of National Petrochemical's ethylene unit, now under construction. The $7-million ammonia facilities, to be completed by Jan., '55, will include an oxidation unit to produce nitric acid; the plant will thus market not only anhydrous ammonia, but also "nitrogen solutions"—aqueous ammonia and ammonium nitrate.

•

Chemical expansions certified by the Office of Defense Mobilization last week include:

- American Cyanamid (Avondale, La.), methylstyrene, $7,840,000 at 60%.
- Stauffer Chemical (Louisville, Ky.), methylene chloride, $2,118,600 at 60%.
- Mathieson Chemical (Pasadena, Tex.), phosphate fertilizers, $1,200,000 at 45%.
- Signal Oil & Gas (Tioga, N. D.), sulfur, $345,127 at 70%.

Not chemical but providing a whopping market is American Enka's $35-million certificate (at 40%) for a nylon fiber plant at Lowland, Tenn.

•

Step by step, Du Pont and Imperial Chemical Industries are complying with the Federal Court's order to stop their combined operations in Canada and South America (CW Newsletter, Aug. 9, '52).

Latest move: Du Pont is asking the Securities & Exchange Commission for an exemption from a provision of the Investment Company Act of 1940 that would otherwise hinder division between Du Pont and ICI of the assets of the jointly owned Duperial-Brazil subsidiary. Du Pont estimates that by Sept. 30, the anticipated date for segregation, net book value of the Brazilian firm will be 208½ million cruzieros ($11.4 million officially, only $4.2 million at the free market rate); and that it will wind up with a 65% interest, the other 35% going to an ICI affiliate.

The Texas gas gathering tax is now approaching its final hurdle: the U. S. Supreme Court. As expected (CW Newsletter, June 13), the pipeline firms filed appeals to the high court from both the state supreme court and the civil appeals court. Two appeals were filed, attorneys said, to prevent any slip-up. The state now has 15 days to file its answer.

•

You can look for some leveling of federal antipollution activity, even if Congress gives the U. S. Public Health Service all the money it has asked for. But this doesn't mean that there'll be less pressure on industry to lick water pollution: As a result of federal efforts, individual states have tightened their laws, are enforcing them more vigorously.

Federal officials urge chemical firms that are doing something about pollution to talk up—in newspapers, on the radio, before local service groups—to let people in the area know of their activity.

The Food & Drug Administration is now casting a critical eye on food colors. At least a half-dozen widely used certified coal-tar colors are being studied intensively for possible health hazards.

FDA says that increased use of these materials to promote "eye appeal" subjects people of all ages and conditions to a continuing ingestion of them. Hence their safety must be established, continues FDA, on a more critical basis than obtained 15 years ago.

•

Also new at FDA is a research project designed to improve evaluation of drug safety. The new attack is to study the effects of a drug on specific enzyme systems. It's a fairly general approach, since the basis of action of most drugs is its effect on some similar system within the body. If the effects of a drug on enzyme systems could be measured directly, it would be a major step in predicting its therapeutic and toxic consequences.

Among the drugs now being investigated in this way: the anti-alcoholism drug, antabuse (tetraethylthiuram disulfide).

•

In another therapeutic study the State of Nebraska is going to use ready-made controls in a study of fluoridation effects. The state health department is setting up a new Division of Dental Health, and one of its first jobs will be to compare teeth of residents of no-fluoride communities with teeth in cities—there are at least nine of them—where natural fluorides occur in the water in optimum quantity.

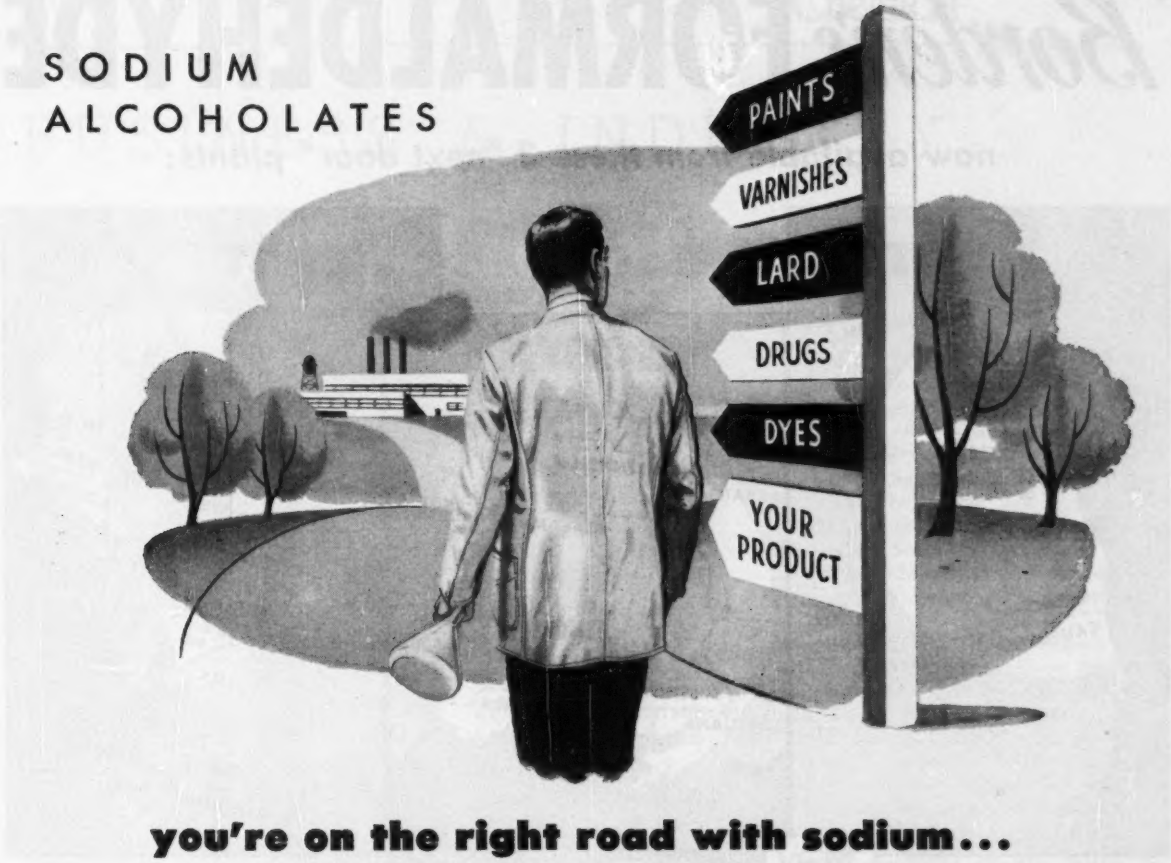
•

The Army, which has been thinking of leasing the facilities it owns at Louisiana, Mo. (see p. 17), now has a new plan under consideration. In tentative discussions it learned that industry didn't relish leasing the units if the Army were permitted to take them back in an emergency. Rather than risk letting the plant stand idle, the Army may offer it for outright sale—with a proviso that the output would go to the government in time of war.

How do you define a "place?" That's a burning question in California, where a law forbids the sale of synthetic ice cream (vegetable-oil rather than butter-fat base) "any place" where real ice cream is sold. Now supermarkets in the Los Angeles area are suing for the right to sell both, contending that the law is not only unreasonable and unconstitutional but also that it's vague and uncertain—they want to sell the synthetic stuff at a different "place"—i.e., counter—in which case, they say, the customer would not be deceived.

. . . The Editors

SODIUM ALCOHOLATES



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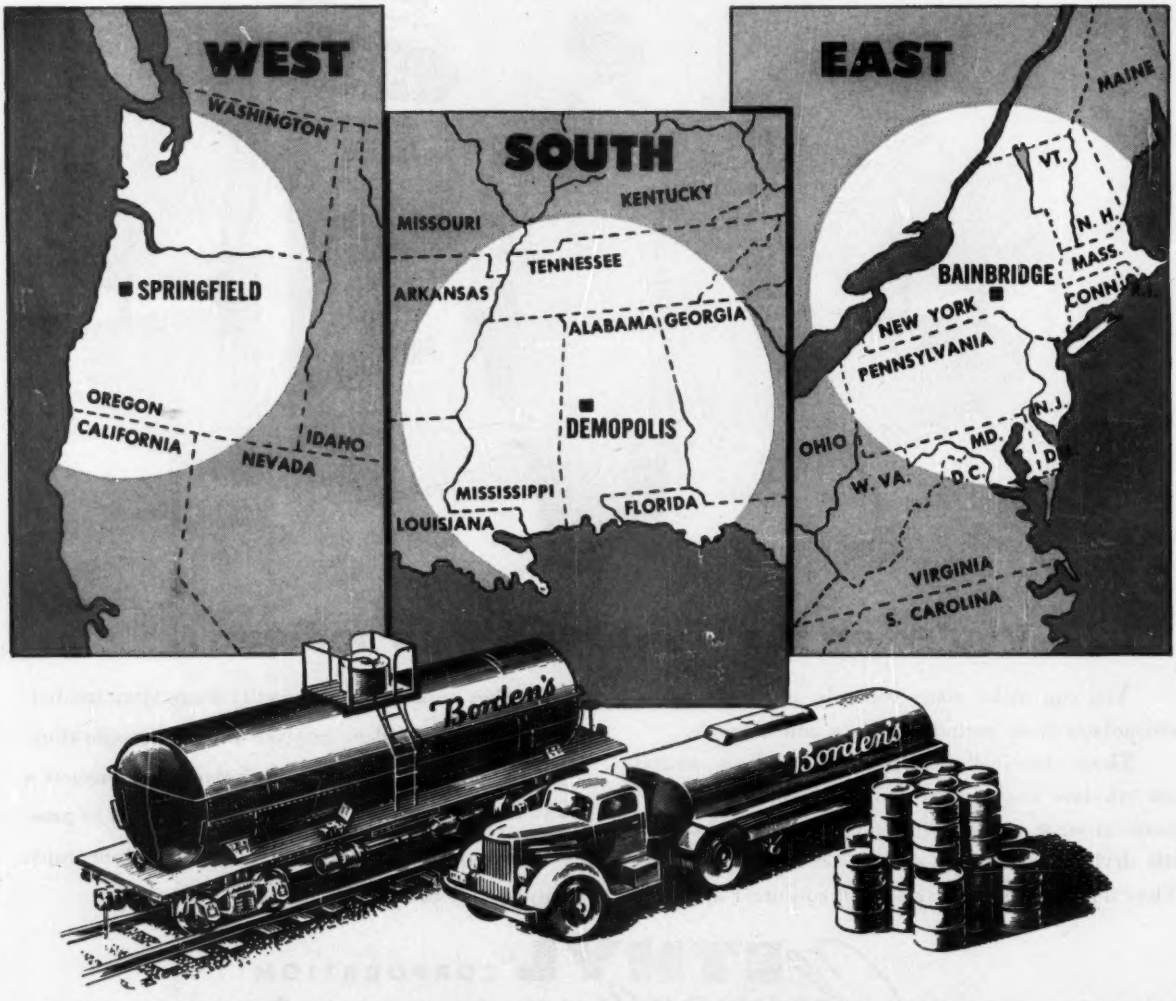

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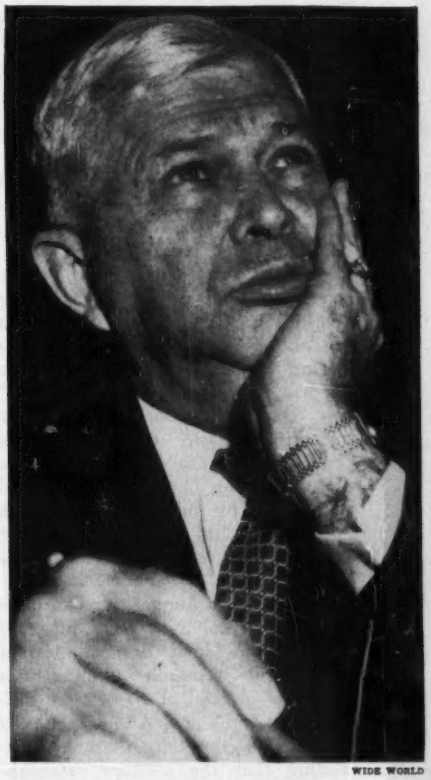
Chemical Week

BUSINESS & INDUSTRY . . .



WIDE WORLD

Wilson: "It is not the intention to cut down on worthwhile research projects, but if you put out too much 'easy money,' you won't get your money's worth out of it."

Prudent or Penurious?

This year, "patriotism" is rivaled by "pure research" as a favorite theme in Fourth of July oratory. Everybody, it seems, is forthrightly in favor of fundamental research, but nobody wants to pay very much for it.

The topic popped into the news like a firecracker last month because of the economy aims of the Republican administration, the outspoken candor of Defense Secretary Charles E. Wilson, and the feeling on the part of some senators and men of science that basic research is as vital in a Twentieth Century defense program as the stone axe was in the security scheme of Neanderthal man.

Wilson isn't taking a stand against pure research as such; he just doesn't want the Pentagon to stand too much of the total expense. But that attitude has been enough to arouse scientists, many of whom fear that with the abolition of the Research & Development Board under the pending reorganization of the Defense Dept., basic research will have no spokesman in the military establishment.

Frugality in Research: Essentially, Wilson's immediate aim is to save money by limiting to $1,300 million Defense's research expenditures for the fiscal year that began this week. That's some $200 million less than had been recommended by former President Truman and some $600 million less than the total for the fiscal year that ended June 30.

Many critics have asserted that the Defense Dept.'s research board set its sights too low when it formulated its basic research policy in Jan. '51. The board said then that basic research is the essential foundation for all military applied research and development, and that each branch of service —Army, Navy and Air Force—should spend each year for basic research not less than 6% of its average research and development expenditures in the preceding five years; and in no case less than $30 million/year as a total. During the past year, Defense allotted $32.7 million—less than 2% of its total research budget—for basic research.

Now it appears that Congress will approve most of President Eisenhower's reorganization plan, which abolishes the Research & Development Board and establishes a new office, Assistant Secretary in charge of Research. The feeling among pure research enthusiasts is that the new Assistant Secretary isn't likely to retain that $30-million minimum in view of Wilson's notions on government frugality.

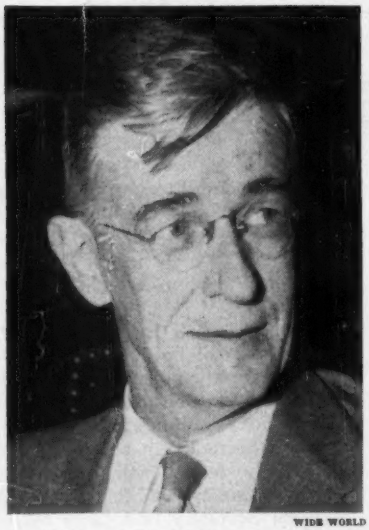
Popularity of Thrift: Wilson's brisk determination to cut military expenses has received wide publicity and considerable popular approval. Those who are opposing the reduction in research spending are aware that they may be branded as reckless boondogglers who have no objection to increasing the federal debt.

But members of this school of thought also know that they can find facts to support their position. They can point to inventions of such undoubted military value as the atomic bomb, blood plasma substitutes and the jet engine—all products of basic research.

They can produce innumerable testimonials from private industry as to the value of basic research. For example, General Motors—the firm that Wilson headed until he went to Washington last January—is telling its stockholders:

"The continuing, rapid expansion of scientific knowledge means that research and engineering will become even more important in the future than in the past . . . The GM Technical Center, under construction a few miles north of Detroit, will provide new and added facilities for this accelerated technological effort."

Boners Are Costly: Thus with increasing emphasis on research in other quarters (Du Pont's 1952 budget for research was $52 million, excluding laboratory costs—an increase of $5 million over 1951), congressmen like Sen. Edward J. Thye (R., Minn.) are fearful that Wilson's economy might be shortsighted. Noting that Britain has achieved jet plane



WIDE WORLD

CARNEGIE'S BUSH: Are we blind to the importance of "knowledge for its own sake"?

superiority through research, Thye declared at a recent hearing:

"That is the only reason I am concerned at this point that we do not make the same mistake by denying the necessary funds and continuing the research projects in the [right] manner, and that we don't have to say three years from now that we made an error."

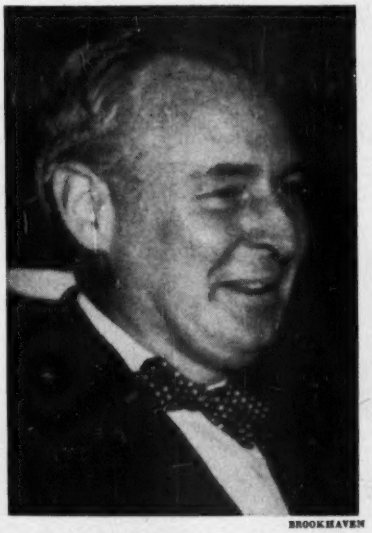
Wilson met Thye's questions with sure-footed confidence:

"I have always believed in doing things better with sound research . . . but I think it should be supervised and guided a bit, so it is in what I call a fruitful research area. If we want to go ahead and have pure research, let's let somebody subsidize it. Let us not put the burden of it on the Defense Dept. I am not much interested in why potatoes turn brown when they are fried as a military project.'"

(This was a reference to a Quartermaster Corps project aimed at improving G.I. diets, and of interest to the potato chip industry. Chip browning—turning almost black—is a serious problem that has so far defied solution, despite research expenditures of thousands of dollars.)

Pure Science Praised: Importance of this issue hangs on the fact that Defense's $30 million/year allocations have been the nation's largest single source of funds for basic research. Private companies view their efforts in this field as merely supplementing the work carried on in colleges and universities, and the graduate student just doesn't have enough money to finance research projects himself. Industry executives, who have to report to stockholders every spring, are often reluctant to hand too much money to a scientist who says he's out to get knowledge for the sake of knowledge, with no thought of finding commercially valuable new products or processes.

Among the scientists who have expressed alarm about the possibility that defense budget-trimming might start a trend away from basic research: Alan T. Waterman, director, National Science Foundation; and Vannevar Bush, president of Carnegie Institution and the country's "elder statesman" on science. Also speaking up on the worth of basic research to the country at large are three men who served under Bush as members of the wartime Office of Scientific Research & Development: Alfred N. Richards, pharmacologist, Univ. of Pennsylvania; Harvey H. Bundy, Boston attorney; Jerome C. Hunsaker, chairman, department of aeronautical engineering, M.I.T. Like-minded on this matter are industry and government leaders like Crawford H. Greenewalt, president of Du Pont, and Guido D. Hilbert, chief of the U.S. Agriculture Dept.'s Bureau of Agricultural & Industrial Chemistry.



BROOKHAVEN

A.U.'S BERKNER: Is the atmosphere in the Defense Dept. "right" for research?

Who'll Do It?: Wilson's cutting of research funds might be either sound economy or penny wise, pound foolish parsimony; but it has served to focus public attention on two important questions. Granted that the nation needs an increasing amount of pure research, the questions are:

- Where should the work be done?
- Who'll pay for it?

So far, Defense Dept. policy has been to farm out its research jobs whenever possible. Richards says it's only common sense to say that government labs should be utilized to the full extent of their equipment and design. Greenewalt has said that up to now, foreign universities had contributed more to our general knowledge fund than our own research centers, and that from now on we won't be able to rely to the same degree on foreign schools for basic research.

On the money problem, Richards feels the government should shoulder a considerable share of the expense, because "very few" private laboratories can bear this burden themselves. Bundy recalls that during World War II, plenty of money was available for research in the hope of finding "something that would win the war"; he doesn't have "any idea" how far government should go in supporting basic research during peacetime. Hunsaker says that he personally feels basic research should be financed by the National Research Foundation, and should not become a subject for arguments involving the Defense Dept.

New Agency Suggested: One proposal for resolving both questions comes from Lloyd Berkner, former government research administrator who now is head of Associated Universities, Inc., an Atomic Energy Commission contractor. Berkner, contending that the military establishment doesn't have the right kind of atmosphere for a vigorous program of

HARRIS & EWING

MINNESOTA'S THYE: Three years from now, will history call this budget cut a boner?

fundamental research, suggests a new agency that could pursue research without regard to military timetables.

This was the idea behind the National Science Foundation, created by Congress in 1950 to foster U.S. research – by giving fellowships to worthy students and to grant funds to worthy scientific projects in universities. But the foundation has cut very little ice–Congress hasn't given it much money to work with. Among NSF's presently subsidized projects:

- At Carnegie Tech, study of heats of formation of chemical compounds.
- At Nebraska U., study of stereochemistry and hyperconjugation of three-ring carbonyl compounds.
- At Illinois U., study of mode of action of cocarboxylase in carbohydrate metabolism.

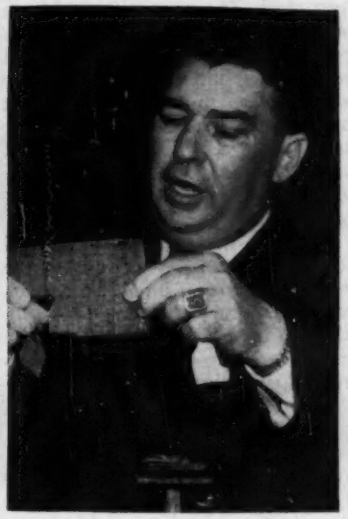
Industry likes two things about research programs like NSF's: They help to produce more skilled scientific manpower and more knowledge that –sooner or later–may be of industrial value. The fact that all taxpayers, rather than a relatively few companies, would be contributing to support the program might be another attraction. But whether government-sponsored research is socialistic, and whether such research might be crippled by bureaucratic supervision, and whether the Defense Dept. can safely depend on another agency to administer research as needed for the country's safety–these are the problems Congress must face this month in passing appropriation bills before the scheduled recess on July 31.

Cradle Chemists

Expose 'em while they're young is Columbia-Southern Chemical Corp.'s answer to the ever-pressing manpower shortage problem. Its method: an early-teen-age student guidance campaign in Barberton, O., designed to inspire youngsters to 'look to the science field for their futures."

To influence interested junior high school students, Columbia-Southern's technical and personnel representatives have literally beaten the bushes, have trekked out to speak to more than 1,000 prospects in their own school assemblies throughout the Barberton area.

For good measure, an extra 150 eighth and ninth grade pupils were treated to a full-dress tour of the firm's chlorine, soda ash manufacturing operations. Said more than one young visitor: "I never realized that a chemical plant was so big . . . that what it makes comes out in so many things at home."



Both Still Stick to Their Stories

THE AD-X2 battery additive hullabaloo (*CW, Apr. 25*) is heading toward a long-awaited showdown this week. The Senate's Small Business Committee is considering pro and con testimony given in last week's five-day hearing, and the National Academy of Sciences has named a group of eight chemists* to evaluate "the quality of the work" done by the National Bureau of Standards in testing the product. Allen V. Astin (*left, above*), the fired and rehired director of the bureau, told the senators the ingredients in a $36 carton of AD-X2 could be bought wholesale for about 5¢. Jess M. Ritchie (*right*), maker of AD-X2, said his business had been hurt by circulation of two bureau-authored letters about battery additives.

* Zay Jeffries, retired vice-president of G.E.'s chemical department; E. K. Bolton, retired director of Du Pont's chemical department; William G. Cochran, professor of biostatistics, Johns Hopkins Univ.; John G Kirkwood, professor of chemistry, Yale; Victor K. LaMer, professor of chemistry, Columbia; L. G. Longsworth, member, Rockefeller Institute; Joseph E. Mayer, professor of chemistry, Univ. of Chicago; and John C. Warner, president, Carnegie Tech.

During the same all-out sell-chemistry push, Columbia-Southern executives invited more than 200 juniors and seniors from science classes of three Barberton high schools on tours, threw in lunch and a preview explanation of what they were about to see. Reaction of the fledgling scientists: "The enthusiasm of the guides meant everything."

Orphaned No Longer?

If bills just introduced in Congress are passed, the two chemical war orphans–General Aniline & Film and General Dyestuffs Corp.–may finally be on their way to private ownership. Similar bills were introduced last week in the Senate–by two Republicans–and in the House–by a Democrat. These would amend present laws to allow sale of GAF and GDC without having to wait for the courts to decide cases brought by those who contest U.S. ownership of the concerns.

The bills would amend section 9 (a) of the Trading with the Enemy Act, the law under which the companies were seized in 1942 as the American tentacles of Germany's I. G. Farben trust. The specific section forbids sale of seized companies until all court claims are adjudicated.

The government ownership of GDC is contested by Ernest Halbach, former stockholder, who claims the government forced him into a settlement on the stock he held when GDC was seized. The more serious contest, however, comes over the ownership of GAF. The Swiss I. G. Chemie, now renamed Interhandel, disputes the U.S. seizure of its stock interest in GAF on the grounds that it was a Swiss concern independent of I. G. Farben, and transfer of GAF ownership to it by Farben was not just a subterfuge to avoid seizure.

If the Trading with the Enemy Act is amended, the Justice Dept's Office of Alien Property would be able to sell the companies in much

the same way as it sold Schering Corp. stock. The money received from such a sale, however, would go into a special treasury fund pending final judgment of court cases. (Then if, for example, the courts should say that Interhandel legally owned 50% of the government's GAF stock, it would then receive half of the money the Justice Dept. obtained by selling the company.)

Although U. S. Attorney General Herbert Brownell, in a letter to the Senate Judiciary Committee (which would have to report on the bill), said that he hoped the act could be amended during this session of Congress, there is little chance of this.

Congress is running behind even on "must" legislation, and this amendment, which might be considered a private bill rather than a public piece of legislation, will doubtless be well down on the calendar.

EXPANSION . . . .

Chlorine, Caustic: Velsicol Corp., Chicago, Ill., has just completed a $2-million addition to its plant at Memphis, Tenn. Included in the new unit: equipment to produce some 44 tons of liquid chlorine, and 55 tons of caustic daily. By-product hydrogen is being piped directly to adjacent manufacturers of shortening products.

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Phenolic Resins: Durez Plastics & Chemicals, Inc., North Tonawanda, N. Y., has doubled its capacity for producing phenolic resins. Says Vice-President Robert E. Dodd: "The stepped-up output makes Durez the nation's largest producer of resins for the casting method—the shell mold or "C" process."

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Molding Powder: The Naugatuck Chemical Div., U. S. Rubber Co., will spend $1.4 million to expand molding powder facilities at its Baton Rouge plant. (The company is still in the process of completing a $1.2-million expansion program, begun in 1951, to increase synthetic rubber output.

Plant manager, Paul Reed, estimates that about 10 million lbs. of the powder will be manufactured annually when the new facilities are in full operation.

COMPANIES . . . .

Chas. Pfizer & Co., Brooklyn, has agreed to buy the outstanding stock of J. B. Roerig & Co., Chicago, Ill. Roerig, with net sales of nearly $6 million in vitamin preparations last year, will be operated as an independent subsidiary of the Brooklyn concern, will keep its present personnel intact. Effective date of purchase: July 31.

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Thurston Chemical Co. will submit to stockholders for approval a plan of reorganization—if a favorable tax ruling on its prospectus, recently submitted to the SEC, is obtained.

The plan: all Thurston 5½% preferred stock will be redeemed at $26.25/share plus accrued dividends; W. R. Grace & Co. will in return issue shares of Grace's voting common stock on the basis of 45/100 of Grace for each share of Thurston issued and outstanding.

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Olin Industries Inc. has purchased control of Interstate Natural Gas Co., Monroe, La., from Standard Oil Co. of N. J., American Republics Corp. and Columbia Carbon Co. Before the deal Olin held 7% of Interstate's stock, now has secured an 81% interest.

Reason for the acquisition says John M. Olin, president, is to provide his company with a facility to explore and develop mineral rights in eastern Texas, Arkansas and Louisiana.

LEGAL . . . . . .

Fair-Trade Vacuum: Following the circuit court's ruling in a drug pricing lawsuit, Florida has joined the list of states that have an accidental vacuum in fair-trade legislation. The decision was that the state's 1949 fair-trade law was unconstitutional, and that a new law would have to be passed if the legislature wants to have the kind of pricing provisions that are covered by the federal "McGuire Act" of 1952. Litigants were Miles Laboratories, Elkhart, Ind., and Eckerd Drugs, Tampa.

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Fumes in Court: Three court cases on alleged air pollution are in the news this week.

• A fine of $100 may not be the last for Swope Oil & Chemical, Philadelphia, unless it gives up making cresylic acid. The company's attorney said it had cut down its cresylic production from 100% to 33%, and was complying with all recommendations of the pollution control division. An industrial engineer for that agency brought a bottle of the acid into court to give the magistrate's nose a sample of the fume, then commented that the only solution he could see was for Swope to stop cresylic production entirely.

• A retreat, or possibly just a move to a more strategic position, has been made by an antipollution agency at Louisville, Ky. The City-County Board of Health heard its attorney recommend an indefinite delay in court action against National Carbide, contending that no court would uphold an order by the board for Carbide to close down its Louisville plant. He said the board should continue to gather data on aerial contamination in the city's industrial area, concentrating on actual health menaces rather than mere nuisance vapors. Carbide already faces legal action from other sources.

• From around Conroe, Tex., 48 residents have gone to federal court in Houston with a "mad on" about the carbon black plant operated by Columbian Carbon near Conroe. They want an injunction either closing or moving the plant, or forcing it to install equipment to control smoke emission. They also want $500 damages for each of the 25 families involved; and if the injunction is not granted, they want an additional $15,000 each.

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Reducing Ruckus: Two manufacturers of methylcellulose tablets for helping overweight persons restrain their appetites are in a scrape over alleged trademark infringement. Model-Etts Corp., New York, is asking the court to crack down on Sharp & Dohme, Philadelphia, for using the name "Melozets" for a product similar to "Model-Etts." The plaintiff wants an injunction, triple damages and court costs.

Darker, Silenter Fourth

This Fourth of July looks to be the most nearly noiseless Independence Day since the 48th state joined the union—and consequently, the poorest summer season for firms specializing in fireworks and their ingredients.

If Gov. William G. Stratton signs H.B. 17, Illinois will join the 27 states that already have laws against all kinds of fireworks except cap gun "ammunition." (Also permitted: public fireworks displays that are supervised, licensed and bonded.) One state has showed signs of backtracking; the Ohio state senate voted to repeal the Buckeye ban.

A comely Chicago suburbanite, Mrs. Naoma Christianson, is leading a drive for enactment of H.R. 116, now pending before the House Rules Committee in Washington. It would make it a federal offense to "bootleg" fireworks into any state in which they're prohibited.

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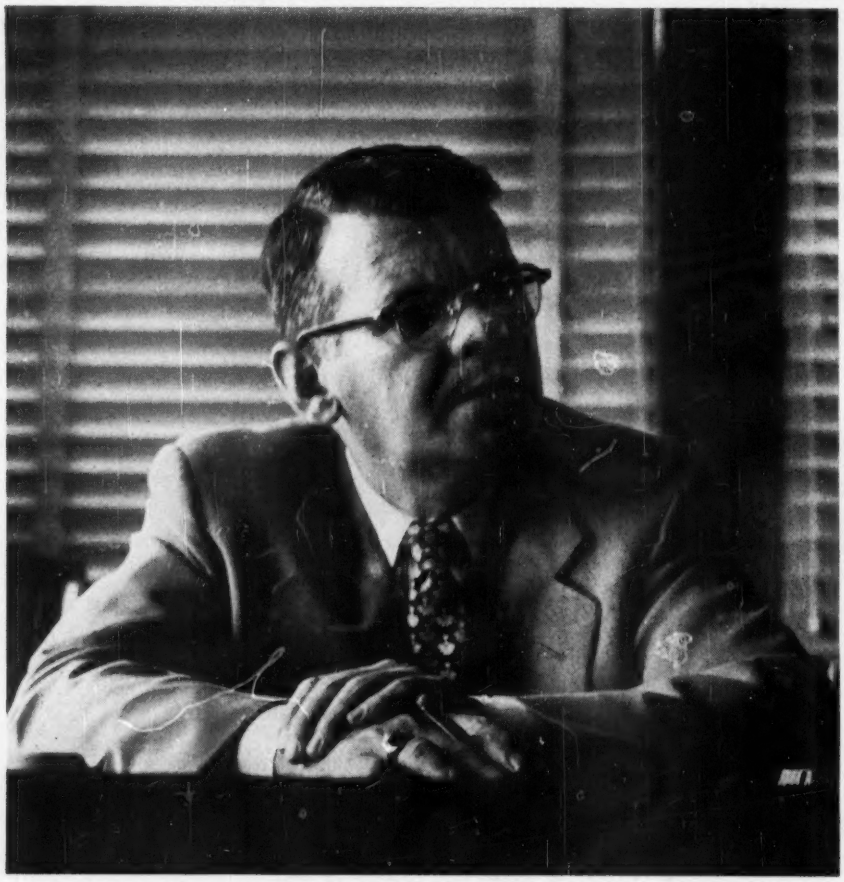
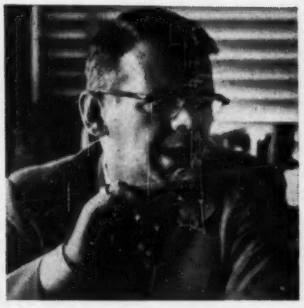


CYANAMID'S KILBY: "To teach an adult, first create a desire to learn . . ."

". . . A person will change

Not Just



"We try to develop a better

JUST AS A football coach has his headaches welding eleven would-be heroes into a cohesive team, so today's corporation has its problems whipping up team spirit. It's not too hard getting executives to pull, but it's rough getting them to pull together.

A multitude of persuasive trick plays have been concocted to produce unanimity; all have failed just as miserably as sheer force of authority fails to pay off. Many chemical companies have even smugly thought pay incentives the sole answer, have puzzled over just where their signals misfired when the expected teamwork failed to develop.

But American Cyanamid Co. has decided that since the problem of motivation is plainly one involving basic human desires, superficial lures won't work. The reasoning: though you may satisfy a man's material needs, though he may be one of the best-paid men, his emotional senses, his basic need for recognition and security must also be looked after.

That's what Calco's training director, Merrill E. Kilby recognized back in 1946 when his money-based incentive system bogged down. That's what launched Calco's "group-therapy" conference program. By this week—some 73 series of sessions later—Kilby stoutly backs up his program, says: "If a man goes through our conferences thoughtfully, he comes out a better team man. We expect no miracles; put when the round-table sessions are over, our men at least have a third-party reference for sounding out the other person's thinking. That makes for understanding, gets everybody pulling in one direction."

Getting in Step: Quite simply, Kilby's program stems from a flat acceptance that our industrial society today is complex, tends to cloud the individual's vision of his importance in the over-all picture. If you talk to a man in your home town, you're John Smith, you stand on your merits. But in a corporation a man is circumscribed by job title and responsibilities, usually has a limit set by his job specification. Often the system makes it impossible for his fellows and peers—and for him—to evaluate his true worth. Rancor develops.

Kilby drops in at the various plants with an appeal to the manager to sit down with his immediate subordinates and thresh matters out. Around a table, the group members chat freely over noncontroversial matters—at first to build informality and mutual trust.

"As soon as we get everything settled down, we move on to step two—the establishment of our common objective: Where are we going? What are we trying to do together? Conversation is slowly worked around in step three (by the process of elimination) to consider not only what we can do, but also how the individual stands to profit from group effort."

"Before you start to teach an adult," observes Kilby, "you have to establish a reason for him to learn." A person will change his attitude only insofar as he feels he has a basic need; you can show him his need best by letting

his attitude only so far as he has a basic need."

Pulling—Pulling Together

concept of problem solving . . . what the other fellow's case lacks."

him listen to his co-workers' appraisals of their individual problems. That's the perspective-setter.

The Backstretch: Once everyone around the table has openly aired his opinions, and grievances (both personal and against the company), and the team is pulling together, it's time to steer the course to a discussion of problem solving (creative thinking), a tough nut to crack. "Above all we want men to realize that all people don't think the same." When they face up to this fact together week after week the point drives itself home. The men begin to see where the other fellow's reasoning veers from the logical path, realize that their own thought processes, though right, may bewilder others.

In practice, the system works very much like a chain reaction. Conferences start at the highest echelon of management, fan out down the scale with one member (the titular boss) of every group acting as the carry-over spark from a previous section. To prevent the discussion from veering too far afield, a training counselor sits in on the weekly meetings, doesn't participate orally but charts the progress to guide the group leader.

When the course is over, Kilby appeals to each supervisor to put his new-found team spirit in motion. If day-to-day snags develop, the machinery for ironing them out is ready and at hand. Clearly and mutually hitched to a set of pre-reasoned principles, each man can hold his thought processes up to the light. "We have given each man a process by which he can reason up to the boss's viewpoint, see that he's on the same team."

Proof of the success of Kilby's efforts to inject team spirit into management: a comparison of "attitude" questionnaires taken before and after a series of conferences. "You sense a singleness of purpose when men have learned to think along the same direction. It's not tangible, it's hard to evaluate; but whether they agree or not, they're driving together, and every man knows what the other fellow's trying to do."

Who'll Buy the Bundle?

While the Interior Dept.'s Bureau of Mines was this week completing the mothballing of its synthetic fuel demonstration facilities at Louisiana, Mo., industry speculation was rife on the future status of the plant.

The Bureau of Mines was moving out; that was sure. Washington officials, in their current economy drive, first cut out all funds for this plant, but later approved a $250,000 mothballing fund.

It was also sure that the government would try to lease the facilities to private industry, but these questions are as yet unanswered: Who would be bidding, what it would cost the bidders, how soon it would be back in operation and what it would produce?

The facilities, now that Mines is leaving, have reverted to the Army Engineers, which originally owned them. The plant was built to produce ammonia during the war. It originally had five lines to produce ammonia. After the war, two of these were moved to San Jacinto, Tex., where they were put into operation by San Jacinto Chemical. The other three, with an annual capacity of 40,000 tons, remained at Louisiana.

The facilities include not only the ammonia units, but also coal hydrogenation and synthesis gas plants.

Bundle for Bidders: The Army has set up the requirements under which the facilities would be leased. It wants to arrange long-term leases (say, 20 years), would base leasing charges on production rate, with a minimum yearly guarantee.

What would probably keep many companies out of the running, however, is the fact that the Army plans to lease the facilities as a unit. If a company wants to make ammonia, it will also have to operate the coal hydrogenation plant.

This was a point stressed by the Senate Appropriations Committee, in appropriating the $250,000 for plant mothballing. Missouri's Senator Stuart Symington was a particularly strong advocate of this proposal. He said he based his interest in the possible wartime needs for alternate methods of manufacturing aromatic chemicals.

And the Army Engineers, even with a personal inclination to lease the units separately, would not lightly override the recommendations of an appropriations group.

The former is now clearing the leasing plans through congressional committee channels. Once this is completed, it can formally call for bids.

One company in the race is Her-

Life...on the Chemical Newsfront...

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Butadiene-acrylonitrile copolymers are among the special synthetic rubbers which may be fabricated into end products possessing outstanding resistance to greases, oils and solvents. These copolymers containing 15-55% of acrylonitrile, when properly compounded and vulcanized, give rubber products which meet the needs of many special applications.

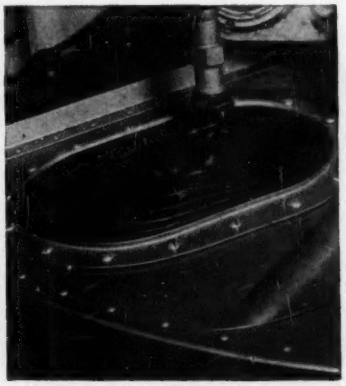
During World War II acrylonitrile rubbers helped solve many serious problems for our armed forces. Practical self-sealing gas tanks for our aircraft removed a great hazard from combat operations. Ships on convoy across Arctic routes were able to refuel at sea through the use of acrylonitrile rubber hose, which was resistant to the action of oils and remained flexible at extremely low temperatures. The same properties make acrylonitrile rubber extremely useful in the fuel and hydraulic systems of high altitude jet fighters today, and in the refueling of aircraft aloft.

In-flight refueling of high altitude jet fighters calls for rubber hose that resists deterioration in contact with fuels and oils—properties that acrylonitrile can impart to rubber.

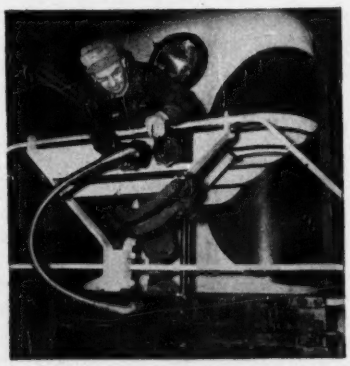
Can Acrylonitrile Copolymers Solve Your Rubber Problems?

Chances are they can, when properly compounded. Need rubber hose to carry fuels, coolants, solvents through machines and plant equipment? Need rubber to withstand shock, heat and continuous immersion in oils or fats? Need rubber that's both cellular and hard, lightweight and strong, resistant to heat and non-absorbent to many liquids? Acrylonitrile rubbers are performing many jobs where these properties are needed.

The use of a wide variety of acrylonitrile copolymer rubbers greatly improves the properties of an ever increasing number of products. For instance: they increase the adhesion and oil resistance of cements and adhesives; impart better scrub-resistance, higher film-hardness and more desirable application characteristics to latex-type specialty coatings; give softness as well as oil resistance to flexible dipped goods such as gloves, boots and the like. Problems of staining, bloom and evaporation disappear when an acrylonitrile copolymer is used as an internal vinyl plasticizer. Paper, fabric, and leather which are coated or impregnated with an acrylonitrile copolymer have greatly improved oil resistance. As a size for a variety of synthetic fibers still another acrylonitrile copolymer makes the woven fabric easier to clean and also reduces loom chafing.



Bellows of acrylonitrile rubber on a helicopter rotor spinner protects working parts of rotor from rain water and salt spray. Acrylonitrile rubber was used because of its good resistance to the deteriorating effects of oils, greases, aging and extreme temperatures. Photograph courtesy of B. F. Goodrich Chemical Co.



The entire operation of a diesel-powered train depends on the performance of the electrical control jumpers between the diesel locomotive units. Acrylonitrile rubber protects cable and contacts from oil and abrasion under severe railroad service conditions. Photograph courtesy B. F. Goodrich Chemical Co.

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To compound vinyl resins with the required flexibility, light stability, and resistance to embrittlement, cracking or peeling with age, proper selection of a plasticizer is important.

AERO Phthalic Anhydride is a source for two excellent vinyl plasticizers, DOP (di-2-ethylhexyl phthalate) and DOPI (di isooctyl phthalate). These plasticizers offer low heat loss, low brittle point and good compatibility. They have excellent light stability, permanence and high retentivity over a wide temperature range.

Rainwear, shower curtains and other items of vinyl sheeting are among the many products that gain flexibility, light stability and resistance to cracking when formulated with one of the plasticizers derived from Phthalic Anhydride.

Among the many products made of resins compounded with DOP and DOPI are shower curtains, adhesives, shoe products and extruded tubing.

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AERO Phthalic Anhydride, esterified with methyl, ethyl and butyl alcohols, provides a family of plasticizers useful for a w de range of high polymeric materials such as cellulose films, ethyl cellulose, cellulose acetate, nitrocellulose, vinyls and synthetic rubbers. These esters are only a few of the many useful derivatives of AERO Phthalic Anhydride.

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Beaker on left holds adhesive material without Dicy. Note gelling condition. Beaker on right holds same material containing Dicy—viscosity is lower and premature gel is avoided.

Improved manufacturing process now makes Dicy available in quantity at considerably lowered costs.

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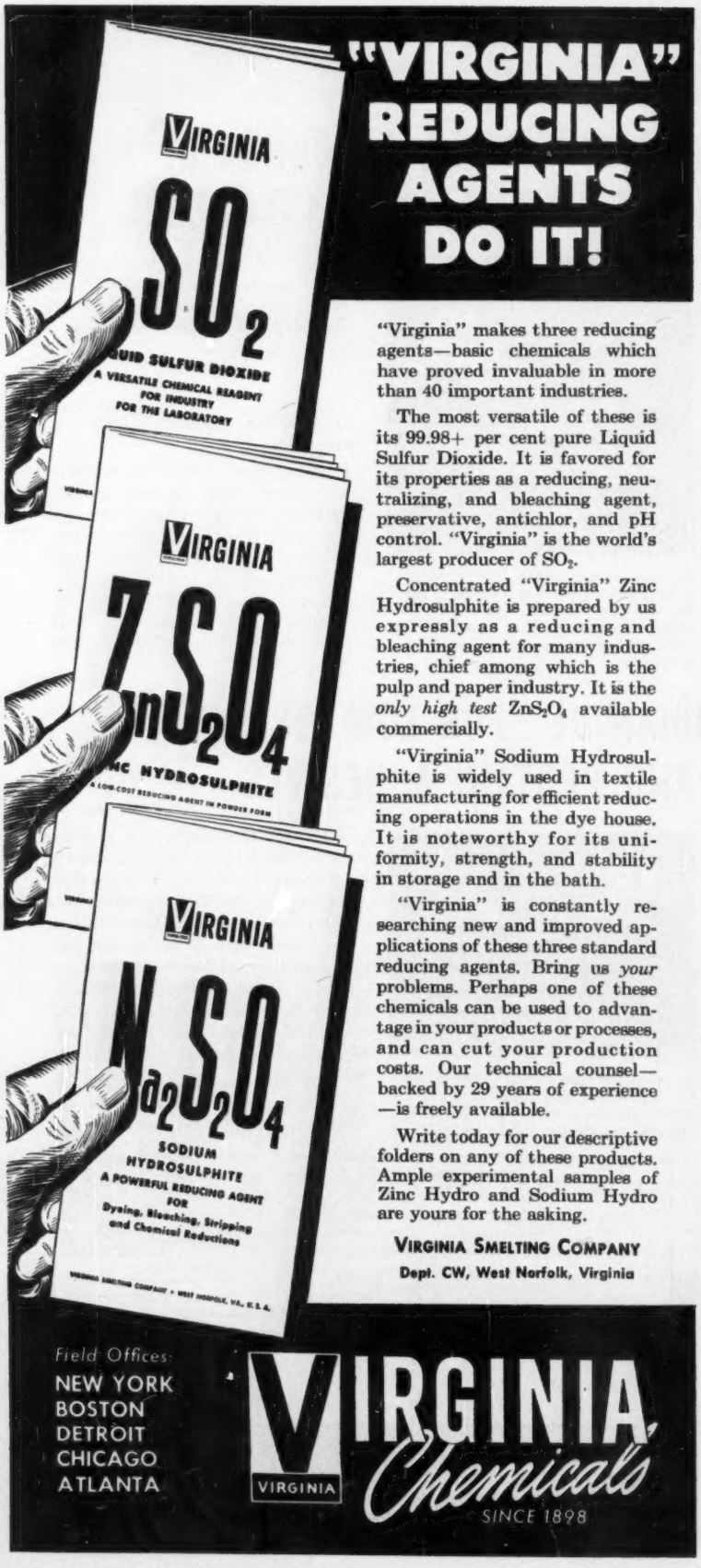
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cules Powder, which built the plant for the government. A part of its contract with the government specified that it have right of first refusal when the facilities were leased. Also, the company retained royalty rights to the ammonia process. Key to the riddle, therefore, is what Hercules decides.

But Hercules is only one of over a score of companies and individuals that have either inquired about or inspected the Louisiana, Mo. setup. Others include Allied Chemical & Dye, American Cyanamid, Atlas Powder, Celanese, Colchem, Commercial Petroleum & Transport, Consolidated Products, Eagle-Picher, Ebasco Services, Ethyl Corp., W. R. Grace, Great Lakes Carbon, Koppers, Lange Bros., Lion Oil, Mathieson Chemical, Missouri Farmers Assn., Monsanto Chemical, National Distillers, Phillips Petroleum, J. B. Schack, Shell Chemical, Spencer Chemical, Tennessee Corp., and three individuals, Charles O. Brown of New York, L. N. Cooley and B. B. Smith, both of Denver.

How many of these companies or individuals would actually submit bids is a moot question. Undoubtedly, where some companies would desire the coal hydrogenation facilities (e.g., Colchem), this would be a deterrent to others who look for the ammonia lines alone.

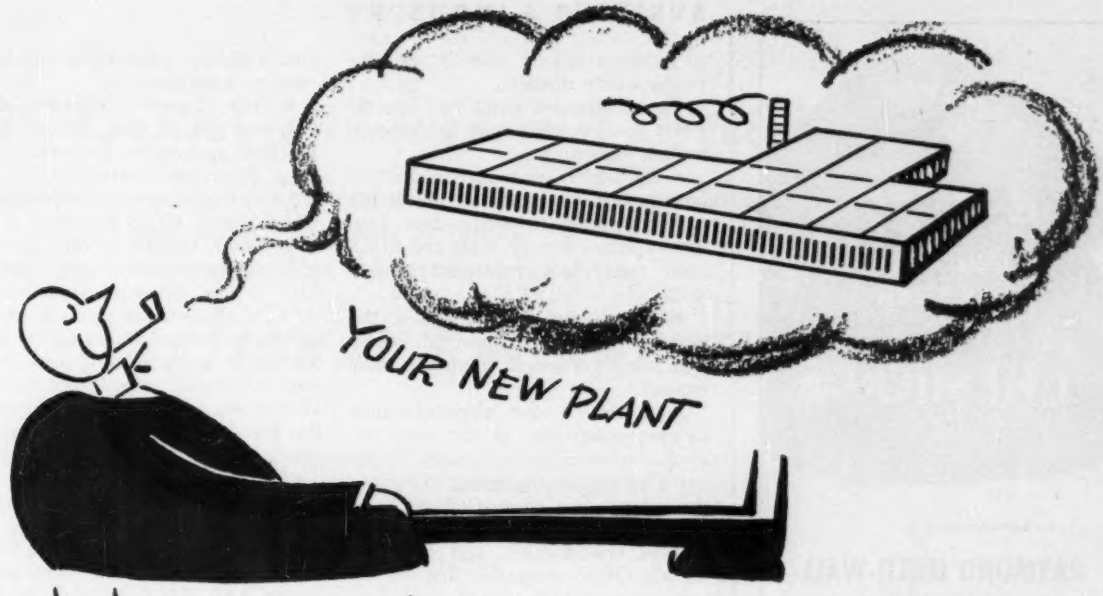
The Army says it will discuss changing the terms of the lease with successful bidders. But without a point-blank statement that they would allow ammonia-only operation, the number of bidders will undoubtedly be quite small.

Business Battle

Chemical, metal alloy and aluminum companies, who as direct industrial customers of the Bonneville Power Administration paid in almost 45% of all of the agency's revenues last year, plan a fight over a contract being negotiated between BPA and the private utilities of the Pacific Northwest.

In a way, the situation is anomalous: The proposed contract that has the companies up in arms is one that has been negotiated since "the businessman's government" came into power last November.

The companies, which receive power directly from Bonneville or through the area public utility districts, feel that the proposed pact would mean no future expansion, an infringement on the companies' present contracts with BPA and the renewal clauses, and is a violation of the part of the Bonneville Act that gives preference



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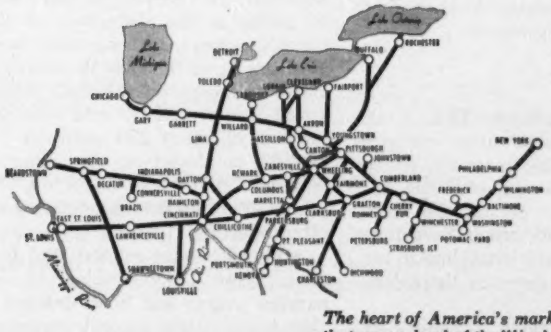

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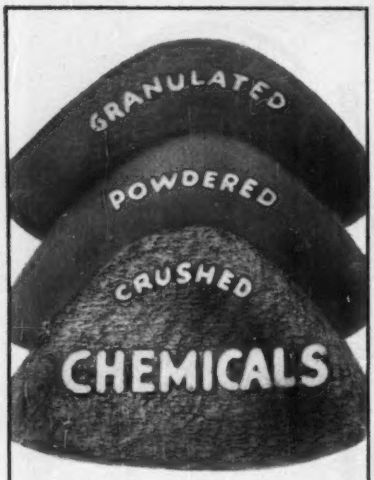

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to industrial power sale through the public utility districts.

The companies point out specific limits that would result if the contract is signed:

• Industrial contracts might not be renewed on expiration unless the industry agrees to reduce firm (uninterruptible) energy loads and to assume certain costs of steam generation.

• All private utilities signing the contract must give approval before any direct industrial customer may expand.

A roster of the electrochemical process companies in the area includes many industrial giants. Heading a committee organized to oppose the scheme are representatives from Alcoa, Union Carbide's Electro Metallurgical Co. division, and Reynolds Metals. Other companies that are direct customers of Bonneville, and thus, might express opposition to the contract, include Carborundum, Crown Zellerbach, Kaiser Aluminum & Chemical, Pacific Carbide and Alloys Keokuk Electro-Metals, Pacific Northwest Alloys, Pennsylvania Salt, Rayonier, Victor Chemical and the Harvey Aluminum and Hanna interests, which are building plants in the area.

Other Opposition: Since the proposed contract seemingly would also change for the worse the status of the public utility districts and the various electric co-ops, too, the industries were expecting these groups to join their battle. Whether or not they will, what is the extent of their objections are still matters for conjecture.

In any case, the conflict between private utilities and the private electrochemical industries is about to put an entirely new factor into the policy on federal power development now being formulated in Washington. This could presage geographic changes in electrochemical expansion.

LABOR . . . . . .

Standoffish Bargainers: This is the negotiating season at many chemical plants, and in some cases the parties seem to be miles apart. No new strikes broke out during the week, but company and union bargaining representatives were struggling to reconcile their differences at these locations:

• National Carbide, Calvert City, Ky.—About 200 production employees went back to work after a four-day walkout. Aiming at a 20¢/hour wage increase, the men—members of Gas, Coke & Chemical Workers (CIO)—rejected the company's 10¢ offer, later decided to return to their jobs and give a federal mediator a chance to catalyze a settlement.

• Dow Chemical, Midland, Mich.—District 50 of the United Mine Workers appears to be seeking the most favorable contract – for employees, that is—in the whole industry. UMW Local 12075 is asking a 15¢ wage boost, transfer of the 19¢ cost-of-living bonus into base rates, a $100/month pension plan, double time for all overtime work, improved sick leave and hospitalization benefits, two more paid holidays (making a total of eight), liberalized vacation allowances, and no loss of wages for the first 26 weeks of a compensable injury. About 6,000 employees are in the bargaining unit.

• Jefferson Chemical, Port Neches, Tex.—A new contract signed with the CIO Oil Workers covers all employees except about 56 who are represented by the AFL Machinists and the AFL Building Trades Council of Port Arthur. The company has made a new offer touching on all points in dispute.

• Coast Mfg. & Supply, Livermore, Calif.—Employees have been on strike since May 21 over wages and work loads. They're members of Local 422, AFL Chemical Workers, and Superior Judge A. J. Woolsey has issued a temporary order forbidding mass picketing.

• Parke, Davis & Co., Detroit—Some 2,300 members of Gas, Coke & Chemical Workers (CIO) have been striking for transfer of the entire 19¢ cost-of-living allowance into basic wage rates. After being on strike more than four weeks and out of touch with the company for one week, the union sent negotiators into a closed bargaining session—apparently a fruitless one.

• Consolidated Molded Products, Scranton, Pa.—Employees have voted to strike at the discretion of their union's seven-man executive board. Business Agent Thomas Watson of the Bakelite, Laconite & Phenolic Federal Labor Union (AFL) said that at a meeting of about 250 members (out of 500 employed at the plant) it was decided to turn down the company's offer of a 5¢ wage increase and other benefits.

• Cities Service refinery and butadiene plant, Lake Charles, La.—Expansion project has been delayed by electricians' strike against contractor, with some 800 construction workers honoring the picket lines.

•

Pals in Parlin, Foes in South: Du Pont and the International Chemical Workers Union (AFL) seem to be on amicable terms at Parlin, N.J., following

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REACTIONS AT THE HYDROGEN ATOMS

Chlorination: Reacts readily in nitrobenzene with chlorine in the presence of catalytic amounts of iron to form 2,3-dichloro-1,4-naphthoquinone.

Oxidation: Reacts with air in alkaline media to form 2-hydroxy-1,4-naphthoquinone.

Ammination: Reacts with amines to form the corresponding aminonaphthoquinone and 1,4-naphthalenediol.

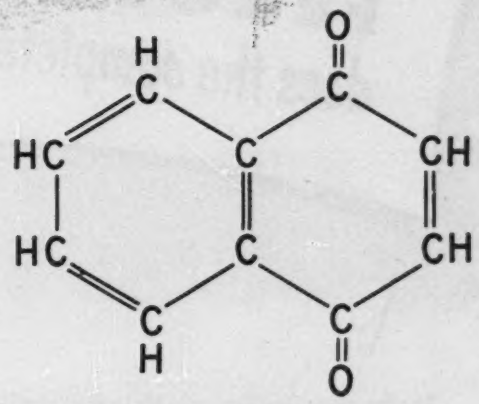
Alkylation: Undergoes alkylation with diphenylcarbinol to yield 2-diphenylmethyl-1,4-napthoquinone.

REACTIONS AT THE OXYGEN ATOMS

Reduction: Is reduced by stannous chloride to 1,4-naphthalenediol.

Condensation With Ketenes: Reacts with ketenes to form mono- or di-lactones, which when heated decarboxylate to form methylene derivatives.

Condensation With Hydroxylamine: Reacts with hydroxylamine to form the mono- and di-oxime.



REACTIONS AT THE ETHYLENIC LINKAGE

Addition of Dienes: Reacts with dienes, according to the conventional Diels-Alder synthesis, to form tetrahydroanthraquinone derivatives. When these reaction products are treated with a hydrogen acceptor, the corresponding anthraquinone is obtained.

Addition of Diazoalkanes: Reacts with diazomethane to form 1-H-naphtho 2,3 pyrazole- 4,9-diol which is oxidized by air to 1 H-naphtho 2,3 -pyrazole 4,9-dione.

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Certain of the above uses are covered by process patents, references to which are given in National Technical Bulletin I-4. This informative bulletin also shows in detail the reactions listed above and may suggest possibilities for using this highly reactive organic intermediate in your current work or your exploratory research.

PHYSICAL APPEARANCE: Greenish yellow powder.

MOLECULAR WEIGHT: 158.1

MELTING POINT: 123°-126°C.

SOLUBILITY: Very slightly soluble in water; soluble in ethyl alcohol, ethylether, chloroform, benzene and acetic acid.

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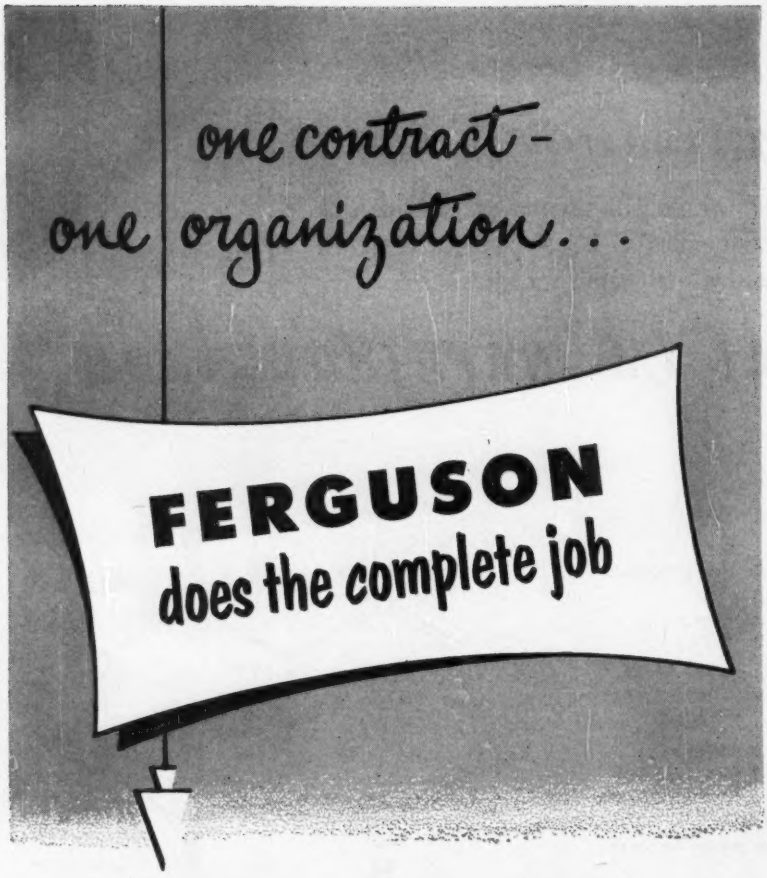

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the recent signing of their first contract there; but at Louisville, Ky., there's friction between the two organizations over the labor situation at the neoprene plant (*CW, June 27*).

At Parlin, the new contract provides for what ICWU calls "probably the highest wage rates in the film production industry." The 5¢ across-the-board increase brought top rates to $2.38½ in the mechanical dept., $2.26½ in the testing & control lab, and $2.17½ in other departments. The contract may be reopened for wage discussions on 10 days' notice. Other benefits: four weeks' vacation after 25 years of service, a new seniority clause, equal distribution of all overtime work.

Latest development in the touchy situation at Louisville: Circuit Judge Macauley L. Smith has ordered the liquidation committee of the Affiliated Chemical Workers of Kentucky—the union that went out of business last year after losing out in an NLRB election—to turn over to the court the remaining assets of ACWK. The committee has been under fire for starting to distribute the $33,285 kitty before a court order became final. Du Pont

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HEYDEN CHEMICAL CORP.'s Simon Askin presents to Mrs. Bernard F. Gimbel, a director of American Korean Foundation, a token sample of the 100,000 packages of penicillin Heyden has donated to the foundation. Lending a silent plea for further aid for some 100,000 war-orphaned children is Yoo Ra Min, a young Korean girl.

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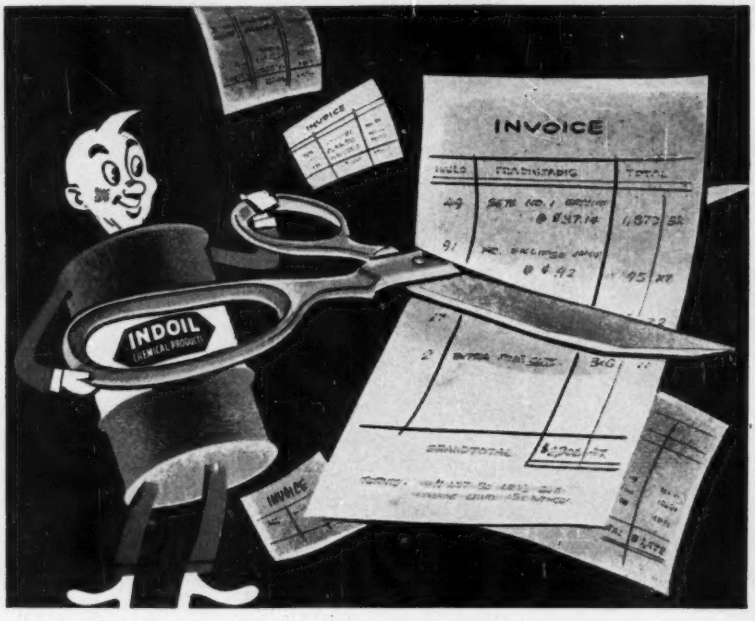

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alleges that premature handouts of those funds illegally influenced employees to vote for ICWU in the run-off election.

•

Big Ones Are Tough: Two CIO unions have won NLRB elections at small chemical plants lately, but a third election at a large plant went to an independent, one-plant union.

• Allied's Barrett Div. plant in Hegewich, Ill., was the site of a 31-0 victory for Oil Workers International Union (CIO).

• Among 68 eligible employees in National Carbon's plant at Black Fork, O., 41 voted for CIO's Gas-Coke, 23 for no union.

• Balloting at Du Pont's Yerkes plant near Buffalo, with 1,028 eligible employees, came out like this: Buffalo Yerkes Film Union (Ind.), 664; Gas-Coke, 203; Buffalo Rayon Workers Union (Ind.), 44; no union, 12.

•

Escalators Are Out: The new Florida phosphate labor contracts (*CW, June 6*) appear to be based on confidence that economic conditions will be relatively stable over the next two years. The old escalator clause (hitching wages to the cost-of-living index) has been crossed out, and most of the contracts run for two years. Both company and union sources are predicting that the new contracts will make for more peaceful labor relations, even though phosphate wages are still about 13¢/hour below the average for the chemical and allied products field. Average rate for phosphate workers now is around $1.65, with common laborers getting $1.30 and top skill around $2.20/hour.

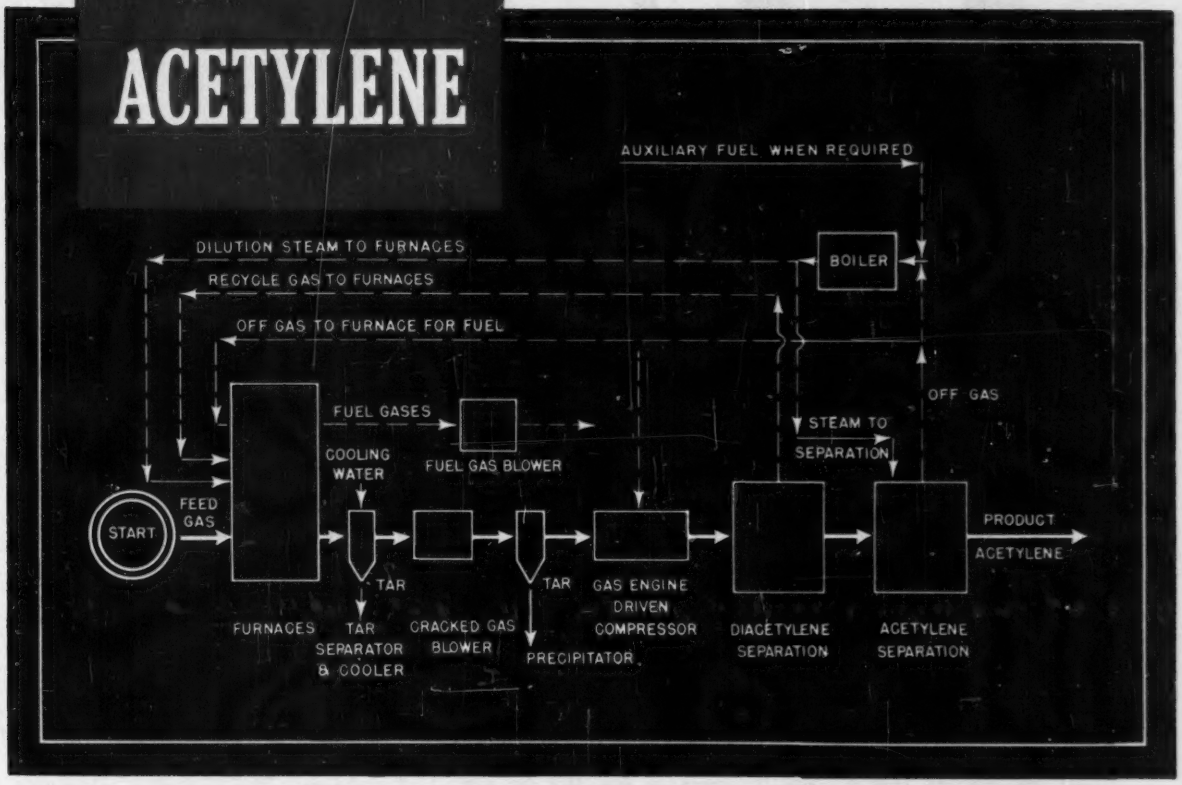
Royal Pharmacists

Under California's Business and Professions Code the pharmacist is the king in any chemical plant. This particular provision of the law so far has not been enforced, but as it still stands on the books following the recent adjournment of the state legislature, it amounts to this: If you want to make any chemical from abietic acid to zirconium sulfate, you have to hire a registered pharmacist to supervise the production.

Naturally, the California chemists are taking exception to that provision. Through their organizations, they're planning to try to educate legislators to the desirability of amending those clauses to take chemical manufacturing out of the pill-roller's domain.

An attempt to modify those clauses was made this year, but failed. The Southern California section of the American Chemical Society, calling the

ACETYLENE



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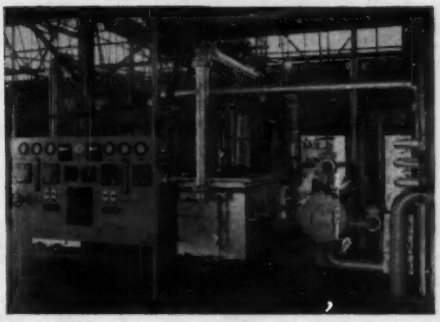

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GAS PROCESSES DIVISION: New York, Tulsa, San Francisco • *In Canada:* Girdler Corporation of Canada Limited, Toronto

For Sale or Lease

Oklahoma has many buildings and industrial sites available for immediate occupancy on a lease or purchase basis. Ample, high skilled labor easy to train, is ready to serve you whether it be in heavy or light industry. Advantages of low cost natural gas, economical power, adequacy of surface and ground water supplies; fast developing markets and availability of raw materials plus a progressive state government, merit your investigation when considering the establishment of a new or branch plant.

1

FLOOR SPACE:
Four clear span steel buildings, 192 ft. long x 100 ft. wide, totalling 115,000 square feet. Four inch concrete pavement between buildings which could be enclosed, enlarging area to 175,000 sq. ft.

LOCATION:
Covers a full section of level land, 640 acres, located five miles southwest of a city of over 10,000 population.

UTILITIES:
Electricity furnished by local power company, reasonable rates based on volume and type of use. Transformer or sub-station on area assures ample supply for any heavy industry. Natural gas lines extend from city. Ample city water is available to site.

TRANSPORTATION:
Surfaced highway extends from city to site. Truck lines are available for cargo. Railroad nearby and spur will be extended.

DESCRIPTION:
Buildings can be utilized for assembly line operation or for warehouse and storage facilities. Parking facilities, room for expansion.

2

FLOOR SPACE:
Total available floor space approximately 140,000 sq. ft.

LOCATION:
Situated on 36 acres of land at the northwestern edge of a city of over 20,000 population.

UTILITIES:
Equipped with municipal power, light and water supply and four inch high pressure gas lines. Eight inch sewer lines connect to city system. Adequate access roads.

TRANSPORTATION:
City served by 2 railroads, 2 airlines, 8 motor freight lines, 2 federal and 2 state highways.

DESCRIPTION:
Floors are heavy duty eight inch reinforced concrete. Windows are out swinging casements and screened. All buildings subject to reasonable lease by municipality. No city taxes.

3

FLOOR SPACE:
Approximately 24,000 sq. ft. consisting of one story, brick building.

LOCATION:
Located in town of over 10,000 population offering mild climate and healthful outdoor recreation, the year 'round.

TRANSPORTATION:
Site served by major railroad and trucking freight lines.

UTILITIES:
Natural gas and electric power furnished by local power companies Amp'e water supply available Access to paved state and Federal highways.

DESCRIPTION:
Parking area in front of structure, ample facilities for expansion Overhead sprinkler system and concrete floor. For lease or sale, reasonable.

These are just a few of the many available locations. Dependant on your needs, other buildings ranging in size and accommodations from 5 to 25 thousand square feet are offered for your industrial use. The citizenry of these communities are anxious to help you in the selection of your industrial site and to make YOUR business more profitable.

How Oklahoma can serve you best in the selection of your industrial site, write in confidence, giving details of your needs and requirements.

OKLAHOMA
PLANNING AND RESOURCES BOARD
Write – Czar Langston, Director
State Capitol Bldg.
Oklahoma City, Okla.

Make More Money IN OKLAHOMA

CALIFORNIA CHEMIST: Under state law, he plays second-fiddle.

law "an overzealous effort to protect public health," observes that the law was initiated with the backing of the State Board of Pharmacy and the California Pharmaceutical Assn.

"Unfortunately," comments the ACS sectional committee on professional relations, "the chemist in California traditionally has been less politically aware than the pharmacist . . ."

Another restriction on California chemists' activities was proposed in a bill to amend the state's Health and Safety Code, but this bill was killed in committee. It would have required that company reports to the air pollution control board be certified by "a registered engineer." In many cases, it's a chemist who normally certifies such reports for a chemical firm.

KEY CHANGES . . .

John H. Hilldring: To senior vice-president, General Aniline & Film Corp., New York City.

Frank P. Maxey: To chemical products manager, Sharples Chemicals Inc., Philadelphia, Pa.

Robert W. Nichols: To sales manager, Chemical Sales Div., Abbott Laboratories, Chicago, Ill.

Carl A. Setterstrom: To general manager, Textile Fibers Div., Union Carbide and Carbon Corp., New York.

William B. Beeson, Jr.: To sales manager, Belle Alkali Co., Belle, W. Va.

J. Roy Gordon: To vice-president and general manager, Canadian Operations, International Nickel Co. of Canada, Ltd.

S. E. Shelby: To general production manager, Federal Chemical Co., Louisville, Ky.

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acetic anhydride			■		dehydrating agent
acetaldehyde		■			
acetanilide		■			
acetone	■				
ethyl acetate	■				
isobutyl acetate	■				
isobutyl alcohol	■				
isopropyl acetate	■				
hydroquinone dimethyl ether				■	ultraviolet inhibitor
oxidized cellulose					hemostatic agent and adsorbant

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KINGSPORT, TENNESSEE

Sales representative for
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division of EASTMAN KODAK COMPANY

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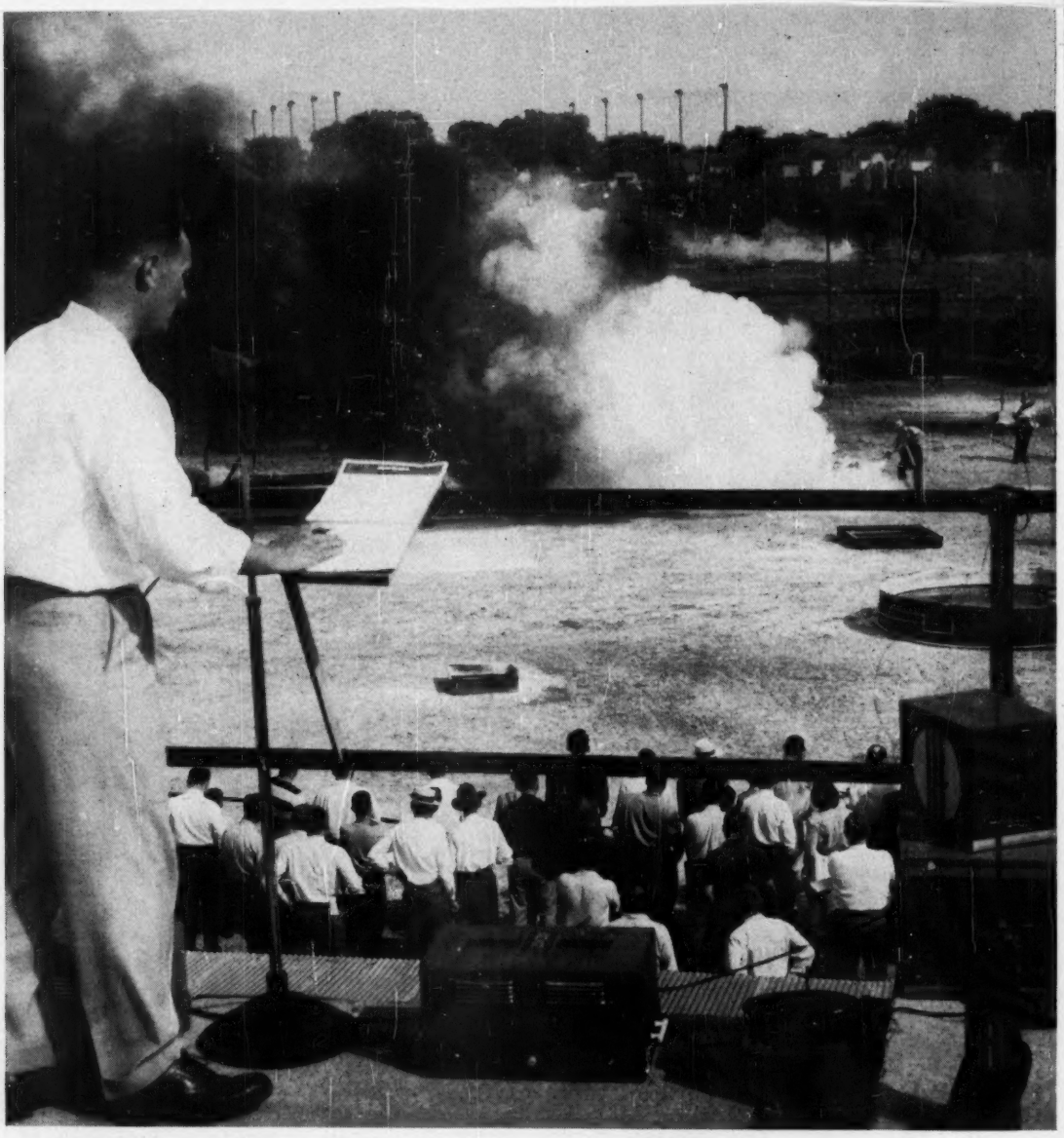


INSTRUCTION: Ansul's Bill Paulsen narrates as assistants snuff fire with dry-chemical extinguisher.

DISTRIBUTION . . . . . .

Selling Fire Chemicals at School

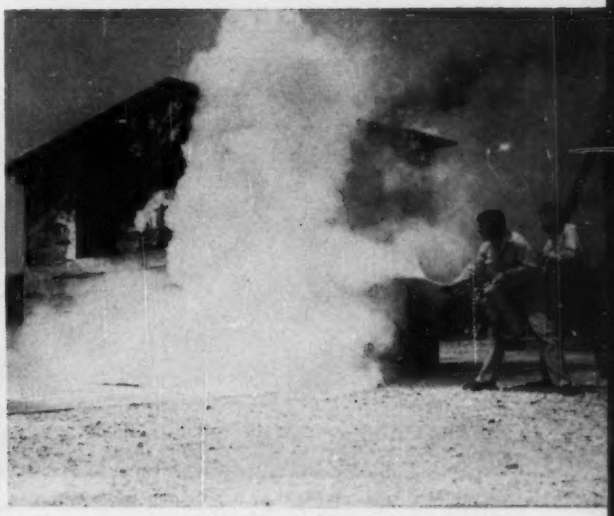
By train, car and plane, 25 industrial fire fighters made the trip this week to Ansul Chemical's northwoods plant at Marinette, Wis. Their cynosure: a three-day fire-fighting course conducted by Ansul Chemical in the interests of public service and smart salesmanship. By the time the "students" headed home Wednesday evening, they had been fully briefed on all the latest techniques of fire control—and thoroughly exposed to Ansul's line of fire-fighting chemicals.

The course is one of nine scheduled this year. With the fair-weather months filled, the school may go "mobile" to tour the South in the winter.

The company's school-class selling is a natural outgrowth of the company's pioneering role in the introduction of "dry chemical" extinguishers (free-flowing sodium bicarbonate expelled by compressed nitrogen or carbon dioxide). The instruction courses established for Ansul salesmen were soon expanded to include distributors and dealers. This led to the inclusion of ultimate consumers—industrial safety directors and plant-protection officials.

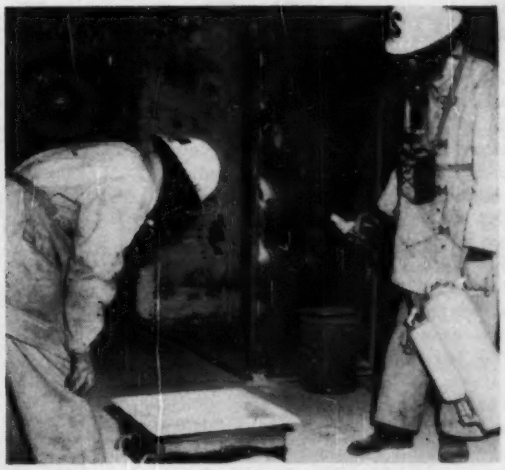
The students pay their own transportation to the school, as well as their living expenses while in Marinette. Ansul donates the instructors, the equipment, and about $100 worth of instruction materials per student. It's an investment that has resulted in a fourfold sales increase during the last eight years.

PARTICIPATION: "Student" firemen leap from jeep (equipped with mounted Ansul extinguishers) to attack a realistic . . .

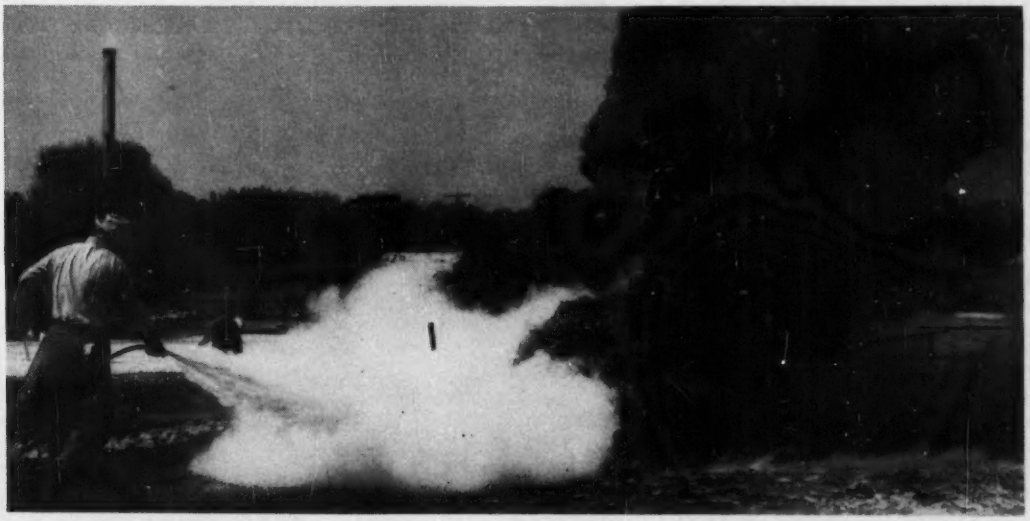


. . . class-room blaze. They put down flames with 30-lb. dry-chemical units, then use ember-quenching water.

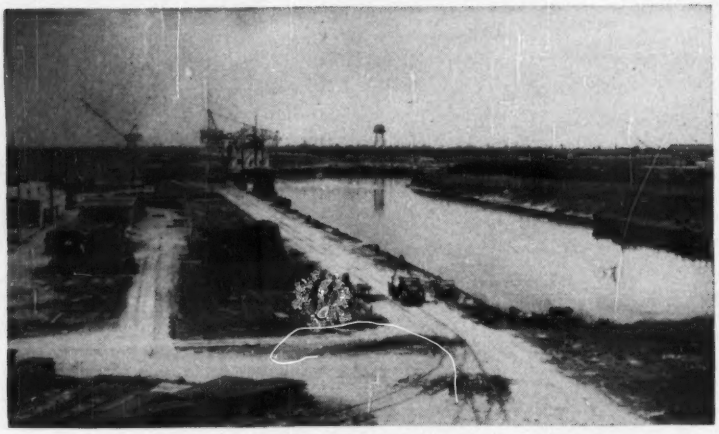
DEMONSTRATION: Two 350-lb. extinguishers attack an oil fire with propelled sodium bicarbonate . . .



. . . while other students inspect the effect of a salt blanket sprayed over a sodium-pan fire.



SPECIALIZATION: Any student can request special-type fires to match home-ground conditions. This is a pressurized spurt of oil and gasoline.



PRIVATE SLIP: Phillips' plant inherited this 1,800-ft. berth space off Houston Ship Channel (in background) when it supplanted shipyard.

Bonus: A Texas Terminal

When Phillips Petroleum Co. decided to diversify into chemicals, chances are its officials never envisioned that the move would eventually put the company into the business of running a commercial ocean-freight terminal. But that's what happened. Business has prospered, and by this week Phillips Terminal Co. (a wholly owned subsidiary) is readying plans to handle an estimated million tons of cargo next year.

The site of all this activity is Port Adams, on the Houston Ship Channel. Phillips Chemical Co. started the chain of events by buying (in 1948) a plot of land that had formerly been used for shipbuilding. As a result, the purchase price included an 1,800-ft. private slip, six giant gantry cranes, warehouses, and a complete network of wharf-side railroad tracks and truck roads.

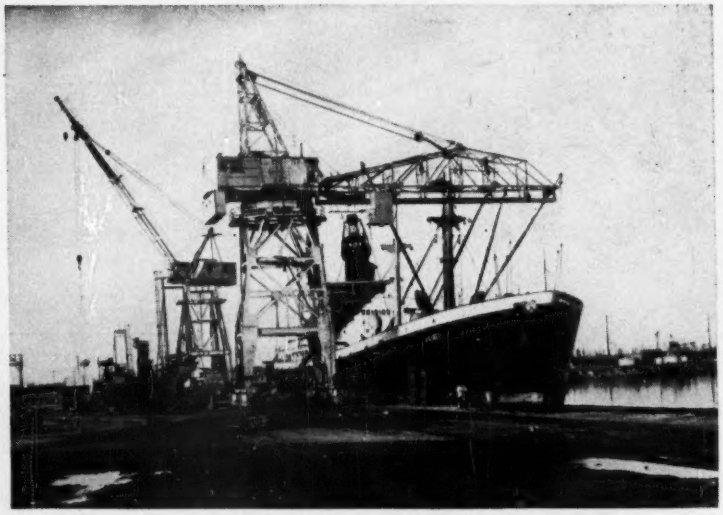
These facilities were promptly put into use as soon as the company completed its new Port Adams ammonium sulfate plant. Most of the product was being shipped abroad under the Marshall Plan, and Phillips was able to load the outgoing vessels directly at its plant site.

The experience proved, moreover, that Port Adams could handle a great deal more cargo than Phillips' plant could supply. The new subsidiary, Phillips Terminal, was formed, therefore, and the services were made available—at a price, of course—to outside shippers. From the start, the venture has been a success. Next year's estimated tonnage will be double that now moved.

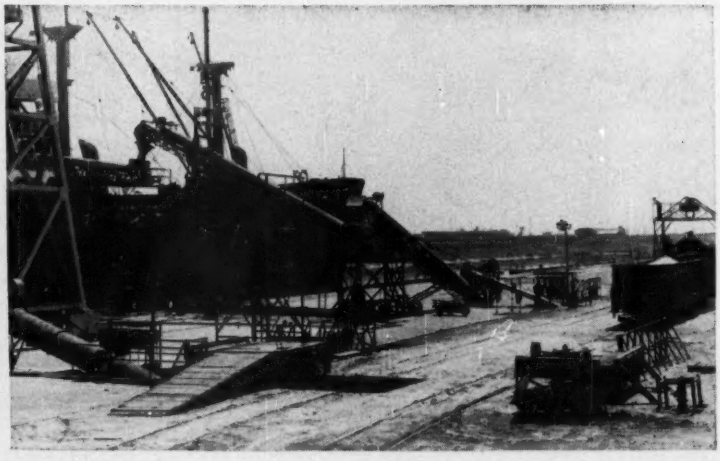
As a commercial terminal, the facilities have handled a variety of nonchemical commodities, including steel plate, pipes, machinery. But most of the items are now chemical raw materials or finished products—with an emphasis on bulk dry materials. Potash from Carlsbad, N.M., for instance, is sent there for export in preference to the more distant ports of Galveston or Freeport. In the same class are sulfur, barytes, manganese and iron ores, fertilizers, and petroleum catalysts.

Moreover, when Phillips Chemical completes its triple superphosphate plant, the terminal will handle both incoming and outgoing shipments for its corporate cousin. Phosphate rock will be shipped in from Florida, and finished fertilizer will be loaded onto departing vessels.

Flexible: In order to handle these quantities of bulk materials, Phillips has had to expand and diversify the original port facilities. For unloading, one of the gantry cranes has been converted to a horizontal-boom ar-



ORE SPECIALTY: Hammerhead crane unloads bulk ores at 200-ton/hr. clip.



POTASH EXPORT: From hopper car to ship hold in one continuous movement.

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"TERGITOL" Dispersant NPX

Excellent detergent with good sudsing properties. Outstanding emulsifier and dispersant. An alkyl phenyl ether of polyethylene glycol—clear, colorless liquid with mild, pleasant odor. Available in commercial quantities in both regular and anhydrous grades.

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Extremely powerful wetting agent. Most effective in solutions containing low concentrations of dissolved solids. An alkyl ether of polyethylene glycol—clear, pale yellow liquid; mild odor. Available in commercial quantities.

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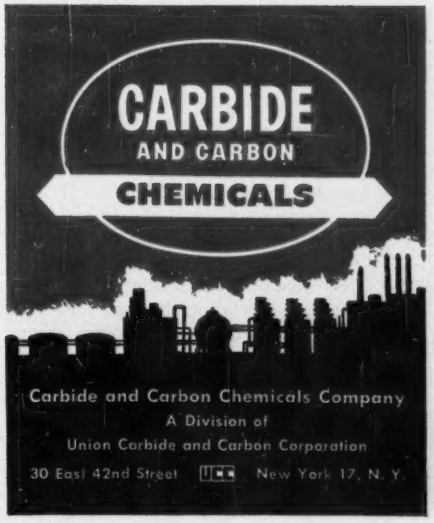
Low-foaming detergent with high emulsifying power. Compatible and stable over a wide range of rigorous processing conditions. An alkyl ether of polyalkylene glycols—pale, waxy solid; practically odorless. Available in commercial quantities as 100% active material.



Try these modifications of TERGITOL NPX for special problems—available in development quantities.

"TERGITOL" Dispersant NP-14 (oil-soluble)

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"TERGITOL" Dispersant NP-35 (water-soluble at high temperatures)

For samples, prices, or further information on any of these TERGITOL non-ionic surface-active agents, call or write our nearest office.

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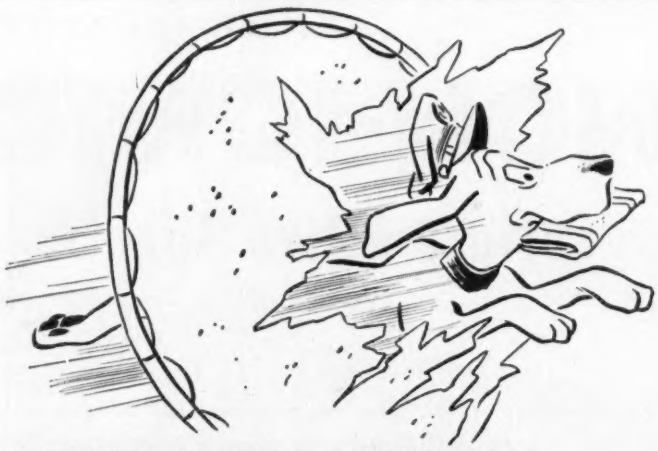

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Cowles detergent silicates are uniform in composition and particle size—dust free—readily soluble—compatible with other alkalies, soaps, phosphates, synthetic detergents and other chemicals.

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COWLES CHEMICAL COMPANY
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DISTRIBUTION . . . .

rangement—with a 7-ton bucket. At the rate of 200 tons an hour, the crane can discharge directly into either railroad cars or trucks.

For movements in the other direction, two tipples—connected with semiportable dock conveyors—have been installed These are able to transfer material directly from hopper car or dump truck to the ship's hold. And to round out the bulk-cargo services, Phillips has equipment to bag any material held in bulk storage.

In addition to the 1,800-ft. slip, the terminal also has 2,000 feet of frontage on the Ship Channel. All of this berth space had a former depth of 20 ft., but Phillips has made space for four large-size ocean-going vessels by dredging a section of the slip down to 36 ft.

Through actions such as this, the company is proving that its terminal venture is not just a chemical-industry curiosity.

Promotion Pieces

Sales promotion literature being distributed this week:

• Atlas Powder Co.—a 20-page booklet titled "Sorbitol Resins." In addition to presenting properties and composition, it also lists suggested formulations for manufacturers of industrial paints and coatings.

• Monomer-Polymer, Inc. (Leominster, Mass.)—a new price list for its 300-odd acrylates, methacrylates, vinyl and allyl esters.

• The Chemical Div. of Koppers Company, Inc.—a 14-page Technical Bulletin C-3-161 covering seven of Koppers' modified polystyrenes.

• The Plax Corp. (West Hartford, Conn.)—a brochure on "The Plax Extrusion Story." Included is a comparative table of properties for polyethylene, methacrylate, polystyrene and fluorocarbon extruded films and forms.

• Witco Chemical Co.—a 16-page pamphlet of comparison charts relating the use of Witco's fast-extrusion furnace blacks and two competitive brands in natural and chemical rubber formulations.

• Organic Chemicals Div. of Monsanto Chemical Co.—a technical bulletin (No. 0-98) describing the use of benzoic acid as a "carrier" in the dyeing of Du Pont's Dacron fiber. Emphasizing the use of dispersed acetate dyes, the 10-page bulletin includes swatches of dyed fabrics.

• Koppers Co., Inc.—16 pages, illustrated, on "Resorcinol," describing the product's history, properties, and commercial uses.

Useful for: Paints – Adhesives – Cements – Anti-Rust Compounds – Floor Tile – Textiles Waterproofings – and many other products

PICCOUMARON

Para-Coumarone-Indene Resin

Available in ten melting points from a liquid to tough, brittle solids. Brief descriptions of principal properties are given below. Complete data and samples will be gladly sent upon request.

SOLUBILITY

All grades are soluble in coal tar solvents, turpentine, terpene solvents, most ketones, most chlorinated solvents and derivatives, and esters. Most grades are soluble in drying and semi-drying oils.

COLORS

Colors vary from light (Coal Tar Resin Color Scale numbers 1½ to 3½) through medium, reddish, dark to extra dark (numbers 12-16).

GRADES

Standard grades include ten melting points and six colors. Special grades are made for users whose requirements are large enough to make special runs economical.

WEIGHTS

PICCOUMARON Resins vary in weight according to the melting point, averaging 8.5 to 9.2 pounds per gallon.

CHEMICAL PROPERTIES

Have good acid resistance, being inert to all except concentrated oxidizing acids; good alkali resistance; do not react with most pigments. Composition is essentially para-coumarone-indene polymer.

PLASTICIZERS

Suitable plasticizers include most of the chemical or ester types; most of the aromatic hydrocarbon types; most heat-bodied oils; raw linseed pitches; stiff petroleum residues.

COMPATIBILITIES

The compatibility of various grades of PICCOUMARON RESINS has been determined for wood resins, petroleum and coal tar residues, pitches, pine tar, paint and varnish oils, rubber and rubber-like materials, chlorinated and other materials.

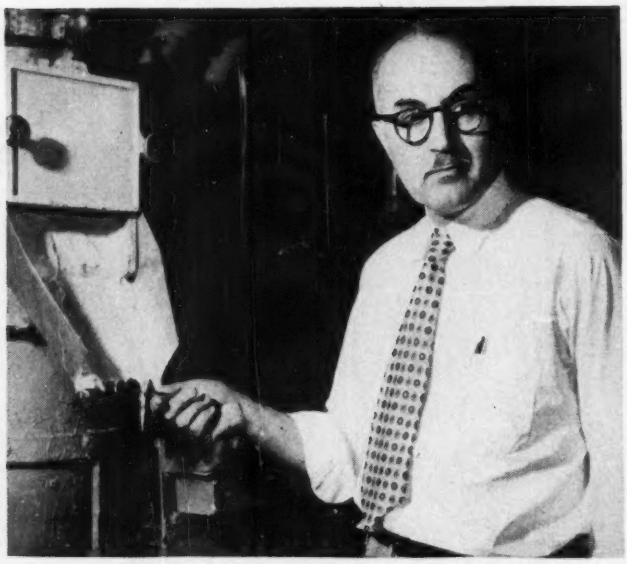
PENNSYLVANIA INDUSTRIAL CHEMICAL CORP.

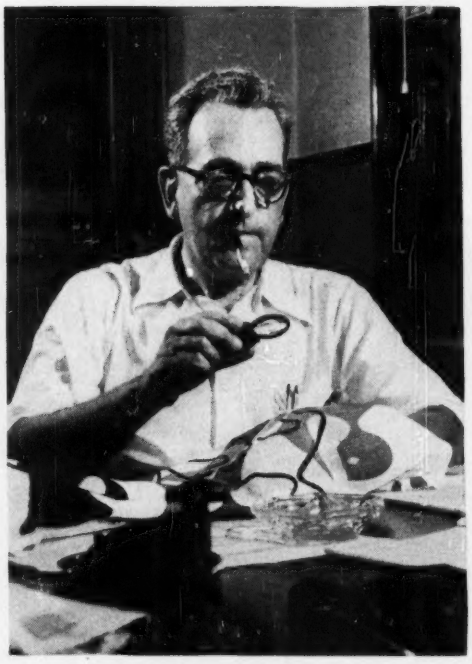
CLAIRTON, PENNSYLVANIA

Plants at Clairton, Pa.; West Elizabeth, Pa.; and Conshy, Pa.

Distributed by Pennsylvania Salt Chemical Co., Pittsburgh 22, Pa.

and Harshaw Standard Chemical Co., Akron 8, Ohio





BALASSA AND AUER: One knows textiles, the other knows colloids; with their pigment progeny . . .

You Can Do It with Water

Three new patents dealing with water-dilutable pigment-printing colors have the textile chemical world buzzing.

Reason: for the first time, water-dilutable colors are competitive with solvent-dilutable colors; and they're safer, easier to use than their better-established counterparts.

Aula Chemicals, Inc. (Elizabeth, N. J.) developed the new printing colors, manufactures and markets them.

A story of far-reaching importance to a broad segment of the chemical process industries has just unfolded in three new patents. They're U.S. patents 2,637,621; 2,637,705; and 2,637,711, and they clearly mark the successful attainment of a long-standing textile goal: water-dilutable pigment printing colors.

Full import of the development can be glimpsed only within the over-all framework of textile printing. Chief appeal of printing pigments as opposed to dyes is that the former are not dependent upon chemical interaction of the color and the textile fiber. By judicious selection of pigment and resin bonding agent, a broad range of colors may be applied to all commercial fabrics. Chemical resistance of the order possessed by some of the synthetics, for example, is not a serious drawback.

Added advantages: pigment shades, unlike dye colors, may be matched exactly; and pigments are more light-fast and chemically resistant than dyestuffs. They all add up to this: pigments are easier to handle, simplify the job of the modern printer who may be called upon to process anything from cotton to the acrylate synthetics on his equipment.

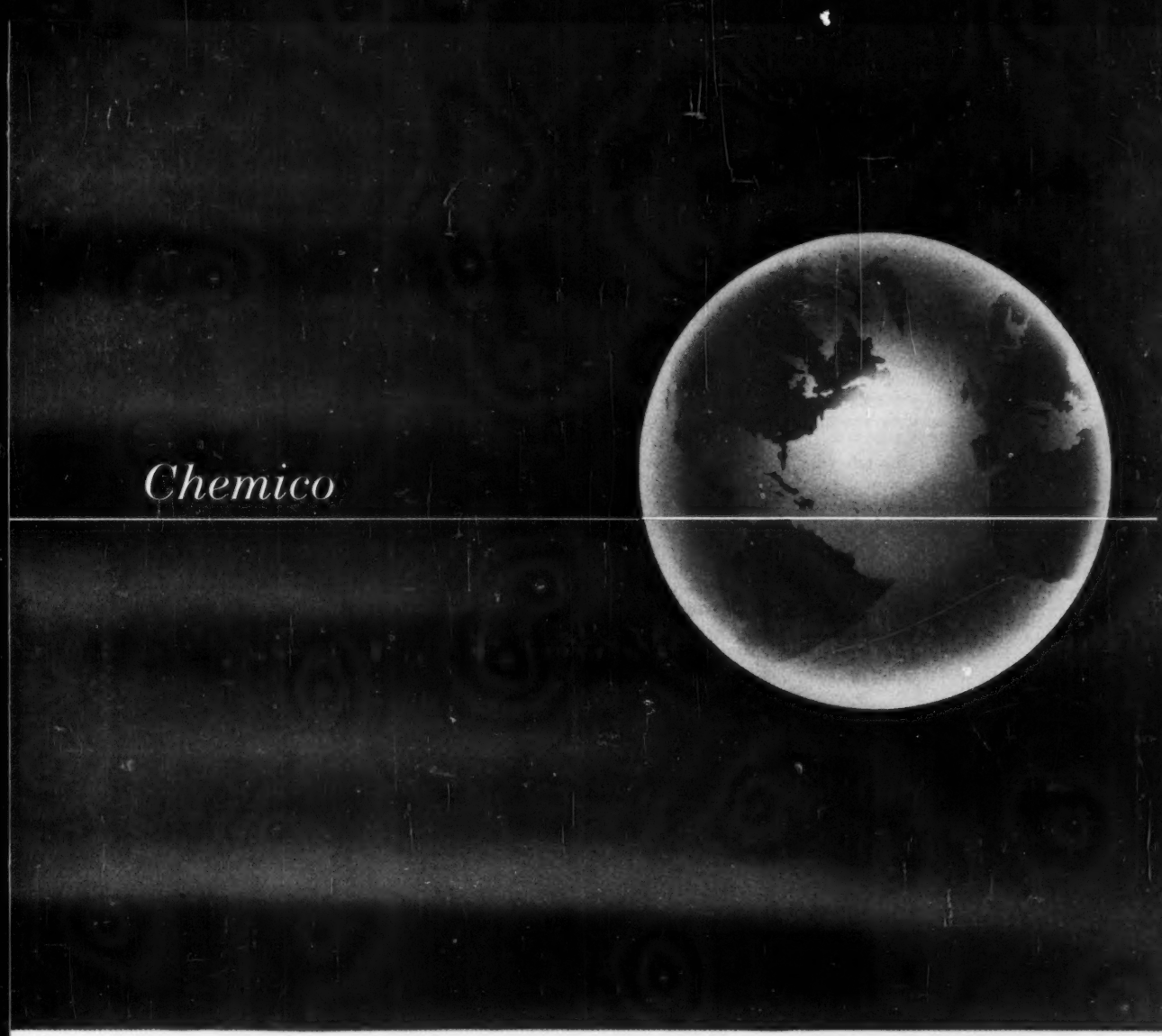
On a practical basis, pigment printing colors usually take the form of resin emulsions. And, until recently, water-in-oil systems were indisputable favorites. Oil-in-water emulsions, on the other hand, always offered attractive possibilities. In the first place, they could be diluted with water; by eliminating the need for solvents (needed to cut water-in-oil emulsions) they would preclude fire and toxicity hazards. And, finally, they probably would cost less than solvent-dilutable colors.

But somehow, water-dilutable colors could never be made to fulfill their promise. Several products were developed, but, for the most part, they found use only in pad dying and similar special applications. They gave flat shades, yielded only one-quarter to one-half the color-strength (based on pigment content) of solvent-dilutable systems, couldn't approach the latter's color "mileage." In short, oil-in-water systems just couldn't compete.

All that, however, appears to be a thing of the past. In the words of up-and-coming Aula Chemicals, Inc. (Elizabeth, N.J.), holder of the new patents: "Colors produced according to the recently granted patents have achieved brilliant prints with extremely high color strength and excellent fastness properties." Aula manufactures and markets the pigment products under its Aulabrite trademark, has turned out limited quantities for some time. The company states flatly that its products are competitive in both mileage and brilliance with solvent-dilutable emulsions.

The Aula colors owe their technological success to dual achievements: a novel resin binder; and a unique pigment dispersion technique. Here, in terms of the patents, is how they work together:

• The binder (contained in patent 2,637,621) is a phenol-epihalohydrin condensation resin of the Epon type. It's produced (according to previous patent 2,530,370 assigned to Aula) by an alkaline polymerization catalyzed with hydrogen peroxide. The resins, when properly formulated, are reputed to impart to the printed cloth high resistance to laundering and dry cleaning.



"a world of achievement in a word"

It has been said that achievement is the measure of progress. Let's look at Chemico's record.

Since 1914 Chemico has been responsible for more than 900 installations in practically every far-flung corner of the earth, to say nothing of its wide scale projects at home. Ammonia and nitrogenous fertilizer for India, Mexico, Egypt and the Philippines; sulfuric acid for Canada, England, Formosa, Brazil and South Africa; urea for Japan; waste acid recovery for Iran, to name a few.

Thirty-nine years of satisfactory service to its clients has earned Chemico a proud record of achievement.

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Chemico plants are profitable investments

• Described in patent 2,637,711, the dispersion method uses a combination of surface active agents* to disperse the pigment in the water phase, emulsify the dispersion. Result is a pigmented resin emulsion in which water is the continuous phase. Extender emulsions, used by the textile printer to cut concentrated colors, are the subjects of patent 2,637,705. According to Aula they yield "high color intensity, . . . brilliance of shade, . . . (give) printpastes of great stability. This stability permits high machine speeds in long runs . . ."

Driving force behind the new development is Hungarian-born Laszlo Auer, president of Aula Chemicals. Auer—colloid authority and holder of patents in the fields of resins, pigments, plastics, coating materials and drying oils—started his pigment printing research in 1947, organized Aula the same year. Patents have lost their novelty for Auer. His newest bring his total of U.S. patents to nearly 100; and his foreign patents number more than 300. Licensed under Auer patents are Gulf Oil Corp. (extreme-pressure lubricants), Baker Castor Oil Co. (dehydrated castor oil), Archer-Daniels-Midland Corp. (specialty drying oils).

Auer's colloid experience is nicely complemented by the talents of Aula's Vice-President Leslie Balassa. Former research director of U.S. Finishing Co. (Providence, R.I.), Balassa brought his broad textile dyeing and printing experience to Aula in 1949. Born in Yugoslavia, Balassa shares his Balkan origins with Auer (though both are U.S. citizens of long standing). Aside from his post with the neophyte New Jersey firm, he retains his positions as president of Barrington Engineering Co., director of Balassa Research Laboratories.

The pair's patent worries may be over. But that's no guarantee of easy pickings in the market. The Aulabrites must still face established solvent-dilutable rivals and such water-dilutable competitors as Interchemical's Aquabond and Sherwin Williams' Sheridye colors.

* Du Pont's Duponol ME, Antara's Nekal BA-75.

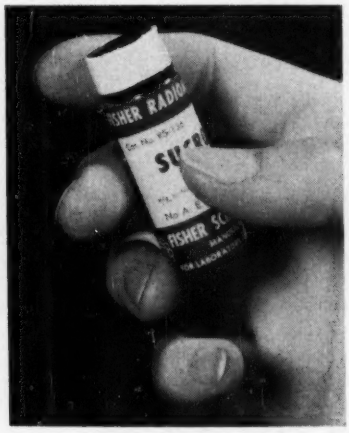
Cooling "Hot" Labs

Atomic debris is like rice at a wedding—it gets into everything and can only be banished by painstaking work. Four days after one of the atomic explosions this spring, the atomic cloud drifted from Nevada to New York, and although the man in the street wasn't aware of it, it necessitated closing down "hot" laboratories for a day or two because of radioactive contamination.

All this points to the need for decontamination data, and now Foster D. Snell, Inc., New York City, has come up with some:

• The harder and smoother the surface, the easier to decontaminate.

• Gypsum plaster is an exception in that it is cleaned best with plain water. Normally soap plus a sequestrant (e.g., Calgon, a modified sodium hexametaphosphate) does the best job. In one experiment plain water



Radioisotopes . . . Special Delivery

WHEN A COMPANY has a line of 6,000 reagent chemicals and adds 25 new ones it is seldom news. But when the 25 are all radioactive compounds it's news.

Recently, Pittsburgh's Fisher Scientific Co. did just that. Soon to be available, the "hot" carbon compounds will be marketed both over-the-counter and by mail, says Fisher's Aiken Fisher (*left*).

Previously, radioisotopes were obtainable only in relatively large (millicuries) radiations, required Atomic Energy Commission authorization and rather elaborate safety measures. Now, Fisher plans to sell the radioactive reagents in microcurie (.001 millicurie) amounts and thus bypasses necessity of an AEC O.K. The radioisotopes, incidentally, will be bottled in small screw-capped glass vials whose walls absorb all radiation of the contents. Added bonus: users need no formal training at Oak Ridge to handle the tagged compounds.

Ever since the AEC released the first pile-produced isotope (Carbon "14") back in 1946, radioactive reagents have been finding ever-increasing applications in industry and research—from tracing oil flow in pipelines, friction and wear in machinery, measurement of catalyst circulation, to "watching" synthesis of ammonia, the path of drugs and foods in the human body and determining — via "hot" cold cream — whether cosmetics penetrate the skin.

But while radioisotopes have become an established scientific tool, only the larger firms have been able to take advantage of them because of the high price of millicurie quantities. Now, Fisher aims to place its measured microcuries within the budget of even the local high school.

Vials (*right*) with 1 microcurie (37,000 disintegrations per second) per 40 milligrams of chemically pure compounds, will sell for $15 each. And as one salesman says, "you won't even need a lead mailbox."

Vulcanization Accelerators

In the manufacture of thiuram sulfide type of accelerators as well as dimethyldithiocarbamic acid metal salts.

Fungicides & Insecticides

In the manufacture of the zinc and iron salts of dimethyldithiocarbamic acid which is used in the form of its zinc and iron salts as agricultural fungicides.

In making the new systemic insecticides, such as octomethyl-pyrophosphoramide.

Fuel

Internal coolant to improve the performance of reciprocating engines.

Dyes, Drugs, Pharmaceuticals

In the synthesis of caffeine, aminophylline, theophylline, and vasoconstrictors.

In the manufacture of anti-malarials and long-chain quaternary ammonium compounds.

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Herbicides

As a neutralizing and solubilizing agent in preparation of concentrated solutions of 2,4-D salts and mixtures of 2,4-D with 2,4,5-T.

Catalysts & Accelerators

As catalysts where alkaline conditions are required for polymerization.

Textiles

To improve affinity of cellulose acetate rayon for direct cotton dyes.

In the manufacture of long-chain quaternary ammonium compounds for use as softeners, lubricants, and water-proofing agents.

Leather

For use in unhairing hides.

Surface-active agents

In the manufacture of amide and sulfonated amide-type detergents and surface-active agents.

Polymerization Inhibitor

Inhibits polymerization of unsaturated hydrocarbons during distillation.

Used as a stabilizer for certain types of resins.

Used to reduce webbing of natural and synthetic rubber latexes during dipping operations.

Other Uses

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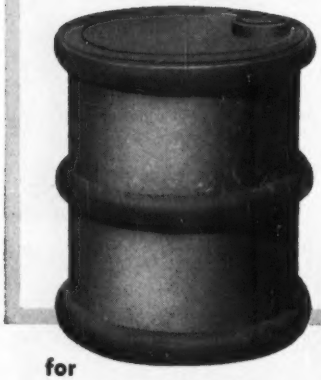

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removed 47% of the contamination from a pane of frosted glass; a 1% soap solution removed 81%; but a 1% solution of 2 parts soap-1 part Calgon took off 98.8% of the offending materials.

- Toughest to clean: plaster.

Rubber Lab to U.?

There's been a lot of hullabaloo about the sale to private industry of the government's synthetic rubber plants, but little has been said about the research facilities.

They're not slated for sale, but the University of Akron, where the government's research is conducted, has detailed a plan to "buy" the laboratories. The word "buy" is in quotes since the university suggests only a nominal purchase price.

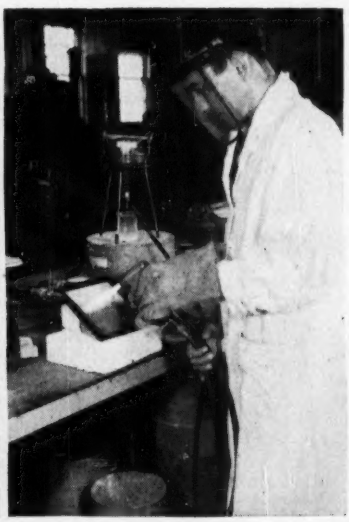
The university's plan as outlined to military authorities presents three alternatives:

- Transfer the facilities to the military, let the school conduct research on a contract basis. Disadvantage: research would be purely military, would hamper desirable cooperation with industry.
- Transfer the laboratories to a civilian agency that could contract to do research for the military and—with Pentagon approval—for industry as well. Disadvantage: under this scheme industrial research results would have to be freely available to all since a government agency couldn't very well work for individual firms, and industry would be reluctant to underwrite research with these limitations.
- Sell the labs to the school. This plan, says the university, combines the advantages of the other two and eliminates drawbacks. As a private agency it could do research both for the military and for industry, on a confidential basis.

But this is still in the future. In the meantime, the university has contracted with the government to continue for another year the basic rubber research it's done since 1942. Price tag this year is same as last year's: $1,157,000.

•

Better to Give: Newly released figures reveal a total of $135,000 allocated by Research Corp. (New York) in 64 grants-in-aid to promising research projects since mid-April. The grand give-away total: approximately $7.5 million.



Ceramics Come of Age

AT THE rapidly expanding Ceramics Dept. of Oak Ridge National Laboratory (operated for the Atomic Energy Commission by Union Carbide and Carbon Corp.), researchers are probing ever deeper in an effort to find materials suitable for construction of nuclear reactors and atomic furnaces.

Experimental ceramic compounds are constantly undergoing tests concerned primarily with high temperature properties, corrosion resistance, ease of coating and fabrication. Watching vacuum dialometer, worker (*left*) is determining thermal conductivity while an associate sprays finely powdered ceramic through a flame onto prepared surface.

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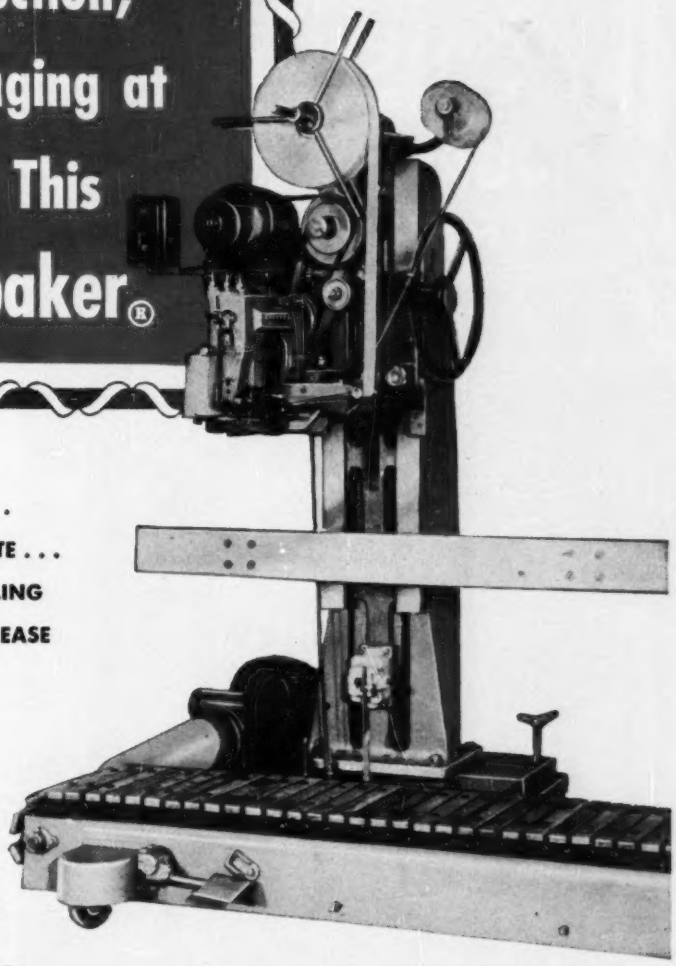

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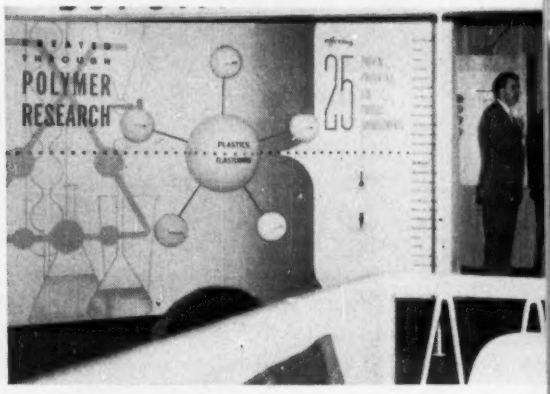

. . . and new materials.

On Parade: Tools of the Trade

New materials for old jobs and old materials for new jobs were on parade in New York City last fortnight at the "First Exposition of Basic Materials" in Grand Central Palace and the concurrent "First Basic Materials Conference" in the Hotel Roosevelt, just two blocks away.

The show was intended to "open the world of tomorrow for consumers." But it was strictly an industry affair. All told, some 9,000 visitors trooped past the 84 different displays or listened to the talks and discussions.

For representatives of the process industries, it carried a twofold interest: some were on hand to show off the products of their processes, while design engineers and others interested in materials of construction were there to see and hear of the latest developments in metals, plastics, ceramics and even the old stand-bys, glass and wood.

The foci of interest for most registrants were the newer metals like titanium, zirconium and hafnium, and the newer plastics and ceramics.

Holding forth on "New Materials Development" was Julius Harwood, assistant head of the metallurgy branch of the Office of Naval Research. These are the materials and developments he nominates as most likely to succeed commercially:

• **Titanium.** Presently there are two major producers of titanium metal sponge, Du Pont and Titanium Metals Corp. Together they are turning out about 5 tons/day. But they have facilities under construction that will boost output to 20 tons/day or a little over 6,000 tons/year. And Chicago's Crane Co.'s entrance into the picture with a commercial plant will raise the total to 10,000 tons/year within the next few years.

Price continues to be the big barrier to more widespread use of titanium. The sponge is currently selling for $5/lb., ingots for $6-7/lb. and mill products for $15-30/lb., depending on size, shape, thickness. However, says Harwood, "there is good reason to believe that within the next few years, the price of sponge will be reduced appreciably. As production increases and fabrication and processing problems are solved we can expect to see titanium end-products within the price range of $5-10/lb. . . . Several . . . new processes are in the pilot-plant stage . . . it may be expected that within the next two years there will be lower-cost processes coming into the production picture."

• **Aluminum.** A versatile, strong, lightweight metal with many other desirable properties, aluminum has one principal drawback: it's not suitable for high-temperature applications. But the Swiss have come up with an aluminum alloy, sintered aluminum powder (SAP), that shows promise of good performance at temperatures up to 800 F., a considerable improvement over the best commercial grades available in this country.

SAP is produced from fine aluminum powder by a combination of cold pressing, hot pressing and extrusion techniques. The Aluminum Company of America is now developing a series of alloys similar to SAP. And aside from the potentials of SAP itself as a material of construction, it has provided a stimulus for the applications of its basic principles to the development of other alloys. Research on that score is being carried out with nickel, cobalt, titanium and magnesium, and Harwood thinks it's possible that a whole new series of sintered metal products may emerge.

• **Precipitation-hardened** stainless steels. Interest in precipitation-hardened stainless steels, says Harwood, has heightened because of several features. They have good strength, resistance and welding characteristics, and they use less nickel than 18-8 stainless.

• **Plastics.** The glamor child of the plastics industry currently is glass-reinforced plastics. Harwood sees a big potential for these but points out that they are not cheap (price ranges from $0.80/lb. to $1.25/lb. for eco-

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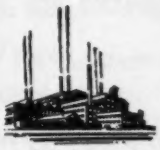

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nomical section sizes) and for any given application, their cost must be balanced against their attractive physical properties.

Another plastic development worth watching is the production of nylon bearings. Pressed and sintered nylon bearings made from finely divided nylon powder by powder metallurgy techniques show good wear resistance as well as good low-frictional and dimensional stability. Moreover, filler materials may be added during fabrication to make them self-lubricating, or to impart conductivity, magnetic or high-strength properties.

• **Nuclear metals.** Probably further off commercially but still significant are those metals whose development has been stimulated by the need for new materials in nuclear reactors. Most significant, of course, is zirconium, production of which has come a long way in the past two years. Its resistance to alkalis, says Harwood, is outstanding; and with many acids, its resistance is "quite good." It would be an ideal material for use in chemical processing, but as yet is too expensive for widespread use.

About in the same category are vanadium and hafnium. Massive vanadium is currently going for $30/lb., but more production would pare that appreciably. Although it does not resist oxidation, it does stand up under exposure to reducing acids and to salt water. Hafnium closely resembles titanium and zirconium, is closely tied up with the latter in nature. It has no commercial application at present. But at a later session, J. C. Robinson, assistant director of the Atomic Energy Commission's division of engineering, suggested that "someone should be considering hafnium as a metal in jewelry."

Beating the Heat: Howard C. Cross, supervising metallurgist for Battelle Memorial Institute (Columbus, O.), gave a quick rundown on materials for use under elevated temperatures. One must distinguish, he points out, between high temperatures for organic materials (e.g., plastics) and high temperatures for inorganics (metals, ceramics, etc.). For when speaking of high-temperature plastics, one seldom means more than 600 F., while there are inorganic materials that stand up under temperature well over 1000 F.

The most significant developments in plastics for high-temperature service in recent years have been fluoroplastics, silicones and heat-resistant polyesters. They have, says Cross, "broadened considerably the service range of plastics."

In the field of metals, one of the

most promising advances has been the introduction of the Swiss SAP. On the other hand, one of the biggest disappointments has been titanium. Originally, on the basis of its high melting point, it was thought to be the answer to all high-temperature problems. Unfortunately, it just doesn't stand up under continued exposure. Nevertheless, it is still a superior metal for work at high temperatures.

Chromium is another metal with a high melting point. And Cross thinks that chromium alloys may be "next step up the temperature scale." Molybdenum, too, would be an ideal metal for high-temperature work except for the fact that it oxidizes readily under heat. Nor does alloying help it.

The best solution seems to be a protective coating, either by cladding it with another metal or by a vapor-phase deposition of silicon or other material.

Measuring Up: Other features of the show included bismanol (manganese bismuthide), a magnetic material recently developed by the Navy; rhenium—rare, refractory, and expensive ($800/lb.); and cermets (metal-bonded carbides, silicides and aluminides).

They all served to point up the tremendous growth and interest in new materials over the past decade, and particularly in the period since the close of World War II. And they indicate to some extent the variety of tools that process designers will have at their disposal over the next decade.

Particle Parlay

An answer to many production problems and a major step forward in the powder field. That's how Sharples Corp. (Bridgeport, Pa.) views its new instrument designed to measure the particle-size distribution of fine powders.

Tagged the Sharples Micromerograph, the new instrument is currently available in one model that sells for $4,750. But if it fulfills Sharples' expectations, it should pay for itself in process control applications as well as in the research laboratory. Four companies—Bakelite, Thiokol, Aerojet, Westinghouse—have already purchased instruments.

Useful range of the machine is approximately 1-100 microns.

Essentially, the instrument utilizes a new combination of old principles. Powder particles dispersed in air are allowed to settle under the action of gravity through a tube onto a servo-electronic balance. The reading from the balance then gives the cumulative

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PRODUCTION . . . . .

MICROMEROGRAPH AT WORK: A new combination of old principles.

weight collected as a function of time. And by applying Stokes' Law, a curve of the actual particle-size distribution can be obtained.

As Sharples sees it, the Micromerograph, besides giving a fast reading (as little as 15 minutes), uses a relatively large sample (about 100 mgs.), thus eliminates many of the statistical errors inherent in many of the presently employed methods of measuring particle distribution. Quicker reading can be obtained by using a shorter tube, but that is done at a sacrifice of accuracy.

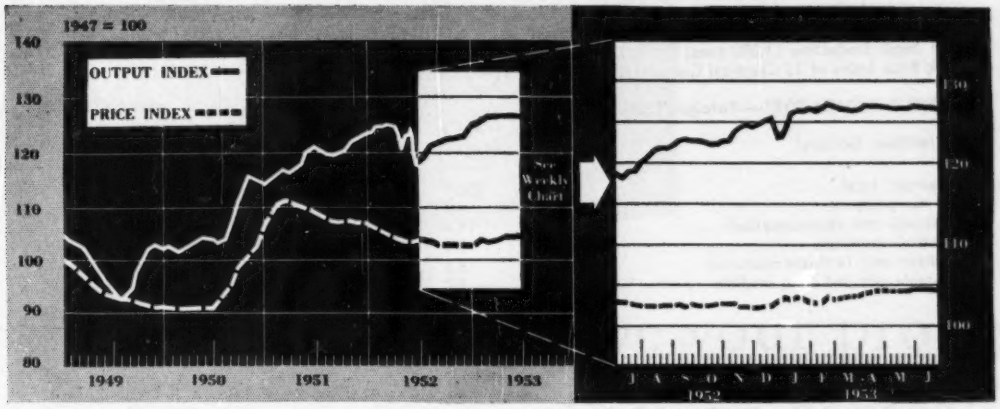
Fresh Approach: Sharples' original interest in the instrument stemmed from its desire to develop a machine for measuring the efficiency of its own classifiers.

One by one, the existing methods were found wanting in some respect. The firm decided that it had need of an instrument that would:

- Retain the rapidity of analysis and high statistical accuracy of liquid sedimentation methods.
- Retain the ease of deagglomeration of the air elutriator.
- Employ microscopic counting as a check.
- Avoid the deagglomeration problem and the upsetting of the sedimentation characteristic of liquid sedimentation methods.
- Avoid the arbitrariness in degree of agglomeration and other drawbacks of the air elutriators.
- Avoid the tedious counting of the microscopic methods.
- Simplify operating techniques and calibrating procedures.

And, according to Sharples, the Micromerograph does all that and more.

MARKETS . . . . . .



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

It's a little too early to tell whether or not late June's slightly stepped-up demands for chemicals has tapered off. But chances are, if consumers were not able to buy all they wanted at the old, lower tags, they may fill out their inventories with some of the more expensive material. That would keep business going at a brisk clip—at least for a couple of weeks beyond the just-passed July 1 increase deadline.

It still seems likely, however, that sellers are going to run into a period of lessening order-book activity after the flurry.

•

In some cases, chlorine for example, purchasers' eagerness to slip under the wire, buy cheaper material, had been dampened. Reason: lack of storage facilities.

Part of the better chlorine inquiries, though, can be attributed to the upcoming seasonal improvement in the amount normally used in treating water and sewage. Now, say producers, if synthetic insecticides production would only pick up, chlorine business would be downright rosy.

•

The synthetic insecticide picture at the moment seems hazy; a mixture of hopes, higher prices and hexed weather.

The hopes: Pesticides producers feel that regardless of the molasses-like start, it's only a matter of time before the seasonal pickup in demand will develop, farmers start buying again.

Higher prices: One DDT maker—Michigan Chemical (St. Louis, Mich.)—late last week took the bull by the horns, hiked tags 2¢/lb. (c.l.). At this writing other makers are still sitting on the sidelines, waiting to see who gets tossed—Michigan (suffering from the same higher manufacturing costs as they), or the possibly "bullish" market. At any rate, if the increase holds, DDT price will be pegged at last summer's 25¢/lb. level.

One big factor in bug infestations—and insecticide sales—is weather conditions. And from that standpoint the Southwest has had the worst, varying from more than a month of unbroken 100° and hotter temperatures in some areas to cloudbursts in others.

On the other hand, Southeast producers, enjoying fine "bug" weather, have only one worry: that overstocked Southwestern sellers may move in, dump their unsold surpluses.

MARKET LETTER

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	126.2	126.2	118.5
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.4	104.3	102.7
Bituminous Coal Production (daily average, 1,000 tons)	1,644.0	1,558.0	1,316.0
Steel Ingot Production (1,000 tons)	2,166.0 (est)	2,183.0 (act)	277.0
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	242.7	239.2	249.4

MONTHLY INDICATORS—Foreign Trade (Million Dollars)	EXPORTS April Latest Month	EXPORTS March Preceding Month	EXPORTS Year Ago	IMPORTS April Latest Month	IMPORTS March Preceding Month	IMPORTS Year Ago
Chemicals, total	$68.5	$66.6	$68.3	$32.9	$32.4	$19.0
Coal tar products	4.9	4.7	4.6	2.9	4.9	3.6
Medicinals and pharmaceuticals	18.1	17.7	18.1	.4	.4	.6
Industrial chemicals	9.1	9.6	11.8	7.4	7.6	5.6
Fertilizer and fertilizer materials	3.3	2.7	3.8	18.9	16.5	8.2
Vegetable oils and fats, inedible	1.7	2.2	6.0	11.0	6.8	8.3

•

A happily exploding demand is behind Shell Oil's 200%-speed-up in plans for distributing its TCP- (tricresyl phosphate) injected gasoline. Introduced late in May in sixteen large cities (CW, June 20), where blending equipment was available, nation-wide distribution was not thought possible before the end of next month.

Addition of equipment at more terminals and bulk plants than originally planned will give more motorists a crack at the souped-up fuel sooner. New Yorkers will get their chance today.

•

Office of Defense Mobilization's 10-million-pound trim in the glycerine target has the trade delving for reasons. Some say the agency's explanation that it's taking imports into consideration to arrive at the smaller 268-million-pound goal (by Jan 1, 1955), may be "window-dressing," to divert attention from the fact there is enough capacity.

At any rate, the new target sees soap-by product glycerine limited to about 140 million lbs. two years hence, as the result of the growing displacement of soap by synthetic detergents.

•

On the other hand, subtracting Shell Chemical's present and proposed capacity from the revised synthetic glycerine goal (128 million lbs.), leaves some 48 million capacity still open.

Talk is that at least two companies are eyeing the field, may already have applied for certificates.

It becomes increasingly clearer, with the just-posted boost in Dupont's cellophane price, that supply-demand factor has slipped behind higher manufacturing costs as the prime price-controller.

The average selling price of the company's cellophane is now 57¢/lb. compared to 55¢ before the adjustment, about 3½% higher.

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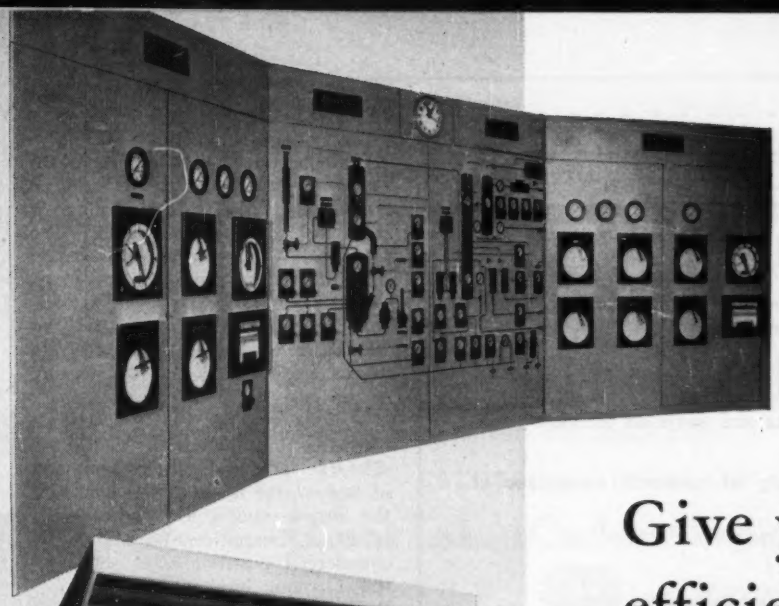
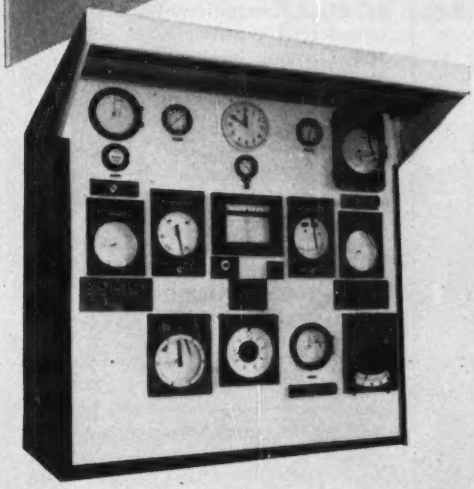
SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending June 29, 1953

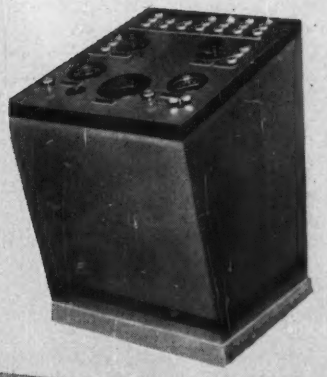
UP

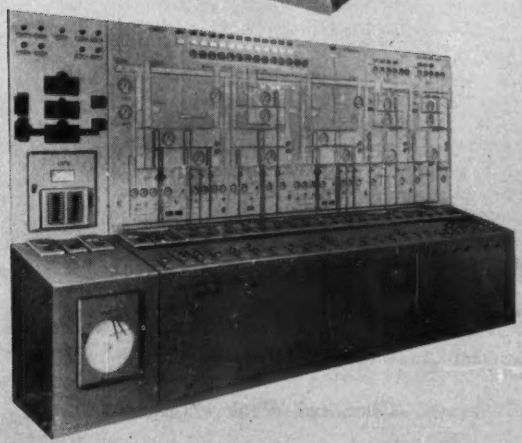
	Change	New Price		Change	New Price
Anhydrous ammonia, fert. tanks, wks., ton	$ 6.00	$88.00	Sulfuric acid, 60°, t.c., wks., ton	2.30	18.60
Chlorine, single unit t.c., frt., eqld., 100 lbs.	.23	2.93	Nitric acid, 36°, cbys., c.l., wks. 100 lbs.	.25	5.25
Aniline oil, t.c., wks., frt. alld.	.02	.20	Toluene, tanks, wks. frt. eqld., Chicago, gal.	.02	.35

All prices per pound unless quantity is stated.









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Isocyanate Chronology

1945

Government establishes phosgene plant, making ready source of gas available after armistice.

1946

German isocyanate applications are unveiled through Technical Intelligence Committees.

Du Pont announces availability of research quantities of isocyanates.

1947

Du Pont patents on rayon-to-rubber adhesives issued.

Comprehensive German isocyanate literature published.

Monsanto invites trade inquiries on isocyanate applications.

1950

German "Vulcollan" rubber announced.

1952

Foamed-in-place resins commercially available.

1953

Goodyear synthetic rubber described.

New Du Pont isocyanate plant goes onstream.

Monsanto expansion plans disclosed.

New Life from Death Gas

Current Du Pont and Monsanto isocyanate expansions point to lively future in phosgene-based compounds.

Rubber adhesives, foamed-in-place resins, new synthetic elastomer promise multimillion-pound isocyanate market.

Higher production economies may drop prices and raise interest in new fields of application.

A few days ago Du Pont quietly turned on the phosgene at its shiny-new multimillion-dollar isocyanate plant at the Chambers Works, Deepwater, N.J. Concurrently, Monsanto Chemical, this country's other principal isocyanate producer, admitted that it was already assembling equipment for its recently announced new unit.

Thus, after several years of creeping and feeling its way, the baby isocyanate industry now seems ready to stand and take a few giant steps toward a full-fledged commercial market.

Only a few short years ago these remarkable compounds existed largely as chemical curiosities in the patent literature. Today, thanks to expanding fields of application, their use potentials aggregate millions of pounds per year.

War Baby: In retrospect, it's strange these compounds didn't blossom forth earlier. Most chemical reactions involving isocyanates were known 50 years ago. But it was only the emergency demands of World War II that finally stimulated interest, at least in the United States, in commercial applications.

The industrial activity in this country can be traced to a two-link chain of circumstances:

- During 1945, in the course of planning for wartime needs, the Chemical Warfare Service established a plant for the production of phosgene, a basic isocyanate ingredient. In this manner, at the end of the war there became available a ready source for as much as 40 tons/day of the gas.
- Following the surrender of the Germans, information of their considerable industrial activity and uses of isocyanates fell into the hands of the British and U.S. Technical Intelligence Committees. Excited by the commercial possibilities unveiled by the German information, both Du Pont and Monsanto were, by 1947, actively publicizing the advantages of isocyanates.

Right now, although the haze of suggested applications has not yet fully lifted, some clear-cut markets are arising.

It Sticks: Farthest along in development is the adhesive field. Sparked by an established need in tire making, this market supplies the firm foundation for isocyanate sellers.

When rayon was first used for tire fabric, it became obvious that the simple adhesives that served for cotton tire carcasses would never work for rayon. Out of the several means devised to make rayon stick to rubber, one of the best to emerge is pretreatment in a rubber cement bath containing a chemical bonding agent.

And because of its demonstrated ability to effect bonding, methylene bis (4-phenylisocyanate), commonly called MDI, is enjoying increasing use.

If MDI had taken over the entire market and had been applied to all rayon tire carcasses last year, this use alone would have required several times the combined present and projected isocyanate capacity of this country. Although MDI and, more recently, triphenylmethane triisocyanate, have proved effective in sticking rayon (and nylon) to rubber, their expanded usage will accelerate more rapidly as their prices drop.

Although currently the primary application for MDI is bonding textile fibers to elastomers, numerous other adhesive applications are possible. Because the chemical has two reactive groups in a single molecule, which will react with any compound possessing an active hydrogen atom, it can adhere to substances containing water, cellulose (wood, paper, cotton), amines, alcohols, esters and ketones.

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the Germans found that they could bond, amongst other things:

wood to wood
wood to iron
iron to iron
porcelain to iron
porcelain to porcelain
light metals to each other
some plastics to each other

In fact, the Germans claimed their adhesives would "stick anything to anything," with one outstanding exception—plywood. Although wood-to-wood bonds can be made, reaction with the moisture in the wood releases carbon dioxide. And because plywood manufacture involves large surfaces, the gas formed cannot escape.

It Foams: A prime quality of isocyanates is their ability to perform even at room temperature. It's precisely this characteristic that is opening another big market for them.

At least two companies, Lockheed Aircraft Corp. and Armour and Co., are busily experimenting and promoting their foamed-in-place resins (*CW, Dec. 20, '52*).

Formed from combinations of polyisocyanates and resinous polymers, these new foams are finding eager takers in aircraft construction, electronic equipment potting, special delicate packaging, floating gear. At present most of the foam is going to the aircraft industry.

It's used there because:

- Liquid in form, it can be poured or sucked into normally inaccessible cavities, such as wing sections, where it will expand to completely fill the void.
- Even under intense and prolonged vibration, the foam, which adheres (in this case, to the inside wing falls) and hardens, will neither shatter nor separate from the metal surfaces.
- The job can be done without the application of heat.

Just how big a market for isocyanates will stem from foamed-in-place resins is conjectural. But one producer said that even a conserva-

Stand-ard Test?

THIS WEEK the popular, if unscientific, method of checking the strength of plastics appears to be to stand on them. At the Chemical Show in Paris, 900 lbs. of human mass tests the plastic and glass body of the "Wildsire," a 6 h.p. Willys base special. At Douglas Aircraft on the West Coast, "Cookie," weighing in at approximately 4,500 lbs., is reluctantly persuaded to turn guinea pig, demonstrate that Douglas' new structural material can easily support her weight. The panel on which she stands is a honeycomb structure of Kraft paper impreg-

tive estimate of eventual consumption will be "millions of pounds." And this figure may be fairly reasonable. For taking an average factor for the foam, about 7 lb. of tolylene diisocyanate (TDI) might be used to fill a 1-cu. ft. void. In terms of aircraft and floating equipment, 150,000 cu. ft. of voids (taking over 1 million lbs. of TDI foam filling) could add up in a hurry.

It Wears: A third potentially large outlet for isocyanates rolled into view only a short time ago. Goodyear's tough new synthetic rubber (*CW, Feb. 7*) said to make tires with at least five times the mileage life of ordinary tires, is fabricable only through the incorporation of the proper amount of a diisocyanate.

Based upon Goodyear Vice-President Ray Dinsmore's remarks, one quick calculation pegs the isocyanate content of the new synthetic at a sturdy 18% of the total weight. This amount is in addition, of course, to any isocyanate that might be needed to bond the tough-to-cement tough skin tread of synthetic to the regular rubber casing.

nated with a phenolic resin and sandwiched between 1/16" magnesium facings. This standard production panel, measuring 4 ft. x 6½ ft. x 2½ in. thick, weighs a mere 58 lbs. It's now being used in building radar van trailers for the military.

Although even enthusiastic Goodyear forecasts commercial production as being at least several years away, it's not hard to visualize the impression the synthetic tire tread could make upon the isocyanate market. A million-pound-plus/year consumption should be well within the realm of possibility.

And Besides: Naturally it might be suspected that compounds with the high reactivity of the isocyanates would find many other end uses.

But as is often the case in adapting laboratory fact to commercial feasibility, the element of cost creeps in. Even operations that may appear practical under German economy may obtain little hold in the U.S.

However, given the right price tag for the material, some additions to isocyanate sales might derive from:

- Textile and leather waterproofing. The Germans have utilized octadecyl isocyanate to form a hydrophobizing, or water-repelling agent. Applied in suitable solvent to leather, for instance, an effective coating might require isocyanate equal to 5% of the weight of the leather.
- Leather tanning. Aqueous emulsions of aliphatic diisocyanates are reported to slice tanning time to a small fraction.
- Modifying drying oils. Given the proper economic balance, so-called urethaine linseed oil, declared to be considerably superior in performance to untreated linseed, might be made to pay off.
- Other derivatives. Isocyanates can be transformed into compounds useful as herbicides, pharmaceuticals, dyestuffs, rubber chemicals.

At What Price? Notwithstanding the importance of price to the development of isocyanate outlet, or perhaps because of it, the producers are loth to predict how thin they can shave the selling tags of the present $4/lb. material. One close-to-source spokesman admits that with expanded production, costs might be pared to where the price can be dropped to $2 or even less in a couple of years.

More Makers? And so—combining (1) the certainty of the adhesives usage, (2) the foamed-in-place resin potential, (3) the future super tire tread expansion and (4) other now-tentative outlets, the total annual isocyanate demand could mount to a 5-10-million-lb. mark within the next several years.

Realizing this possibility, it is easy to understand why a present non-producer grudgingly admitted, "We may have overlooked a good bet in not jumping into isocyanates several years ago. Don't be surprised if you hear from us soon."

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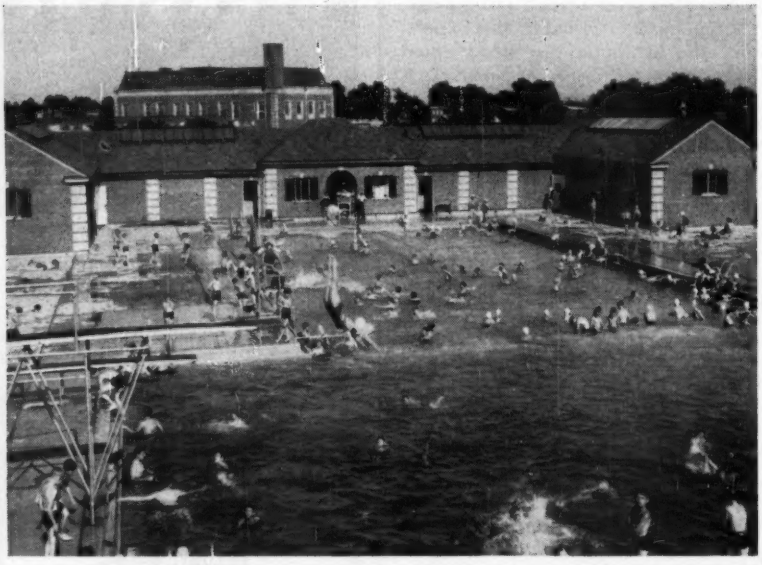


HOT WEATHER OASIS: Clear, germ-free pools for pleasant bathing call for . . .

For a Better Swim

Safe bathing in America's 25,000 swimming pools puts in a hot-weather call for chemicals.

Water purifiers are biggest sellers, but protective paints and algacides are in demand, too.

There may be plenty of singed fingers, sunburned backs and strained muscles resulting from this July Fourth weekend, but because of some basic sanitation chemicals, there'll be little infection due to swimming in the nation's pools.

Providing water-purification equipment and chemicals, sanitizers, and maintenance paints has become a thriving enterprise in recreation-conscious America. Though precise figures aren't available, there are an estimated* 8,000-9,000 public pools in the nation and upwards of 15,000 private pools. That they require a tidy heap of purifying, clarifying chemicals can be shown by New York City's season requirements for its 27 pools (representative of requirements for public pools):

Chlorine	59,000 lbs.
Anhydrous ammonia	5,000 lbs.
Sodium hypochlorite (15% sol.)	12,000 gal.
Aluminum sulfate	80,000 lbs.
Soda ash powder	140,000 lbs.
Soda ash cake	20,000 lbs.
Copper sulfate	8,500 lbs.
Ammonium alum (lumps)	20,000 lbs.

* By *Beach and Pool* magazine, a leading publication in the swimming field.

(A California pool equipment firm figures that the owner of a 20x40-ft. pool pays about $12-14/month for chemicals alone, not including painting.)

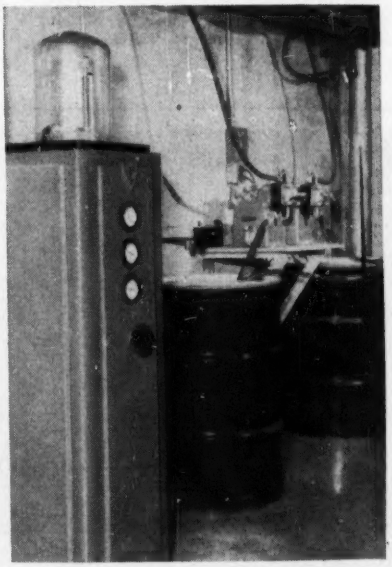
Pure and Pretty: These chemicals produce water that is almost always clearer than ordinary drinking water, is equally free of bacteria. A factor, too, has been pool engineering—almost all pools now built have recirculating water systems where the water is constantly being filtered and treated. The old fill-and-draw pools and the water-demanding flow-through types have been virtually eliminated.

Chlorine still holds down top spot as purifier. Gaseous chlorine (sold as liquid in tanks) is perhaps cheapest, and is certainly the most widely used in public pools. It is metered into the water by specially developed equipment. Another low-cost chlorination system—pool size, number of bathers, and possible danger from leaking chlorine helps determine the most suitable system—employs sodium hypochlorite in water solution. But the sodium hypochlorite is difficult to store, must be purchased from pool equipment suppliers at frequent intervals

Calcium hypochlorite—in grain, powder, and more recently, in pellets—has found considerable application. Mathieson, Columbia-Southern, and Pennsalt are top suppliers (they sell chiefly through distributors).

A fairly recent development in pool water treatment has been tabbed "breakpoint chlorination." By using a higher than usual concentration of chlorine (six parts per million, against three for example), a greater portion of "free residual" chlorine is maintained. This chlorine form is far faster in action against bacteria than the combined residual chlorine (called chloramine).

Brother Halogen: There has been some use of bromine in pools. Work was pioneered in the Midwest, prompted by the Halogen Corp. of America (Chicago). It has never achieved the widespread application its promoters hoped, but Paddock Pool Equipment Co. (Los Angeles) reports that it is brominating some



WATER PURIFYING: And chlorine, soda ash and alum do the trick.

1,000 private pools in southern California. Touted advantages are low irritation of mucous membranes, and simplicity of use; some pool equippers suggest that bromine as a liquid is somewhat hazardous. For water sterilization, it's put on a par with chlorine.

In Europe, and to a limited extent in the U.S., silver has been employed for pool water sterilization. It has never taken hold, perhaps because of what pool suppliers regard as slower action.

Sparkle Factor: To obtain the water clarity that swimmers like, flocculation with potassium or ammonium alum is practiced. Alum is added to

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pool water to bring down suspended matter (in fill-and-draw pools) or used in recirculating systems as a filter aid.

Soda ash and caustic soda are both used to maintain water at the recommended pH of 7.2-7.8; in public pools, they are generally added by mechanical feeders.*

Algae are a problem solved in several ways. Careful chlorination will eliminate virtually all algae. But in private pools, where recirculation is often intermittent, other controls are employed.

Copper sulfate has long been used, but it isn't regarded as effective against all growths. Also sold are more effective complexed copper forms that cause less discoloration—an additional advantage. Quaternary ammonium compounds are commonly used; Paddock Algae Control is a typical product.

In the East there appears to be a preference for surface-active agents to control algae. Some of these are Inertol Co. Inc.'s (Newark N.J.) Exalgae and Modern Swimming Pool Co., Inc.'s (White Plains, N.Y.) Algem. Algem is alkyl aryl bromide, works by causing the algae cells to rupture. Typical dosage calls for a gallon of the chemical in a 50,000-gal. pool, with additions of a quart every 4-7 days. Prices are $5-6/gal.

Silver Lining: Introduced this spring was a new algacide, U. S. Movidyn Corp.'s (Chicago) Algadyn. It's a colloidal silver product in combination with dispersing agents. It's claimed to have a residual effect (apparently due to its clinging to or lining the pool walls) and Movidyn hopes to get Food & Drug Administration approval soon to advertise its disinfectant properties, too. It's used at about the same rate as other products, costs $6.50/gal.

Since the tiled swimming pool has lost favor because of high construction cost, painted pools have become common. Three main types of paints are in general use:

- Cement-based. It's the most inexpensive method, but cement must be applied each season, is not durable in cases where pool water may become acidic.
- Chlorinated rubber-based. Introduced in the mid-30's, these paints are similar to chlorinated industrial maintenance paints. They will last 3-5 years, and at $6-8/gal., they cost about three times as much per pool coat as the cement paints. Most dry

* Among the leaders in water-purifying equipment are Wallace & Tiernan (Newark, N. J.), Builders Iron Foundry (Providence, R. I.), Everson Mfg. Corp. (Chicago, Ill.).

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SALES OPPORTUNITIES

If you are a manufacturer seeking new or added sales outlets—or if you are a manufacturer's agent or chemicals distributor with the capacity, time and energy to take on additional lines—make your interests known in this column of CHEMICAL WEEK. The right agent or jobber teamed up with the saleswise manufacturer makes the right combination for the hard selling days ahead. There's profit for both, which can be initiated through low-cost classified advertising. Write TRACERS Dept., Chemical Week, 330 W. 42nd St., N.Y. 36, N.Y.

slowly, require 4-7 days to cure. Modern Swimming Pool's Pool-Cote is claimed to dry overnight. Other examples are Wilbur and Williams Co.'s (Boston) Rubber-Coat #330, and Inertol's Ramuc.

• Vinyl-based. Somewhat more expensive than the chlorinated rubber paints, they are more difficult to apply, but will last 4-7 years. Paddock's Perlcote is representative.

Specialized Specialties: Right now, the market for the specialized products for pools—the paints, sterilizers, disinfectants—is limited. But Americans are becoming more vacation-conscious, more pools are a-building. Led by California—a majority of the private pools are centered around Los Angeles—there's a minor boom in private pools. But even the optimists admit that there'll never be a pool in every backyard.

Hand for Nature

Mineral soil builder is being sold now by Western Mines, Inc. (Denver, Colo.)—a concentrate said both to fertilize and to improve the tilth of soil.

Tabbed Magnite, the new product contains organic carbon in a nitrate-bearing shale, and is claimed to contain useful percentages of nitrogen, (10%), potash (5%), sulfur (10%), calcium (12%), magnesia (2%), iron (2%), silica (5%) as well as traces of copper, zinc, manganese, boron, cobalt and molybdenum.

Essentially the new material is a mineral mix. In the pilot plant at Denver, Western Mines is using as raw material what it terms "the cream of natural erosion," found in the valleys of Utah, Wyoming and Colorado. At present, the plant is processing about 50 tons of raw material daily.

One of the components is tschermigite, a natural ammonium alum recovered from carbonaceous material near Wamsutter, Wyo.—it's a cross between peat moss and lignite.

Western claims Magnite benefits soils in three ways—by rebuilding the mineral content, by aerating and improving its tilth, and by lowering its freezing point. Distributed in 10 Western states, Magnite is available in 1- and 5-lb. packages, as well as 25-, 50- and 100-lb. sacks.

Mix Your Own

A high-detergency booster for motor oils, Motor Detergent Concentrate, is now being offered by the Texas Co. The additive produces an extra-heavy-duty lube for operation under severe driving conditions.

Motor Detergent Concentrate is an oil-based blend of the compounds generally used to fortify motor oils—detergents, dispersants, antifoamers, and the like. Texaco recommends a quart of MDC for every five quarts of top-grade oil for conditions like high-temperature, heavy-load driving, or "cold" start-and-stop operation.

Texaco's concentrate joins several detergent combinations currently being offered motorists—products like

Cactus Chair

SITTING on cactus isn't as bad as it sounds. Queen City Tulatex Corp. (Burlington, Vt.) has worked out a process for converting the thorny plant into a durable, resilient cushion.

The cushioning, called Tulapad, shown here in furniture produced by the Bunting Glider Co. (Philadelphia), is said to be about half the weight of ordinary upholstery pads. It's made by spraying the cactus fibers (from Mexico) with rubber latex (U. S. Rubber's Lotol), then heat-curing the rubber on the fibers. Prime advantage of the cactus is its length and toughness, which contrast to the short fibers commonly used.

After the mat has been cured, it can be cut into the shapes desired by the furniture maker.

CHEMICAL WEEK • ADVERTISING INDEX

JULY 4, 1953

AMERICAN CYANAMID CO., INDUSTRIAL CHEMICALS DIV. 18-19
Agency—Hazard Adv. Co.

BAKER & ADAMSON PRODUCTS, GENERAL CHEMICAL DIV., ALLIED CHEMICAL & DYE CORP. 3rd Cover
Agency—Atherton & Currier, Inc.

BALTIMORE & OHIO RAILROAD 21
Agency—The Richard A. Foley Adv., Inc.

BERKSHIRE CHEMICALS, INC. 53
Agency—Sterling Adv. Agency

BORDON CO., THE 10
Agency—James Thomas Chirurg

CARBIDE & CARBON CHEMICALS CO., A DIV. OF UNION CARBIDE & CARBON CORP. 33
Agency—J. M. Mathes, Inc.

CELANESE CORP. OF AMERICA 3
Agency—Ellington & Co., Inc.

CHEMICAL CONSTRUCTION CORP. 37
Agency—Michel-Cather, Inc.

COMMERCIAL PETROLEUM & TRANSPORT CO. T34
Agency—Laughlin, Wilson, Baxter & Persons, Inc.

COMMERCIAL SOLVENTS CORP. 39
Agency—Fuller & Smith & Ross, Inc.

COVER, H. S. B57
COWLES CHEMICAL CO. B34
Agency—The Bayless-Kerr Co.

DOW CHEMICAL CO. 55
Agency—McManus, John & Adams, Inc.

DU PONT DE NEMOURS & CO., E. I., ORGANIC CHEMICALS DEPT. 5
Agency—Batten, Barton, Durstine & Osborn, Inc.

EASTMAN CHEMICAL PROD., INC. 29
Agency—Kenyon & Eckhardt, Inc.

EMPIRE TRUST CO. T46
ETHYL CORP. 9
Agency—H. B. Humphrey, Alley & Richards, Inc.

FERGUSON CO., H. K. 24
Agency—The Bayless-Kerr Co.

FISHER CHEMICAL CO., INC. 1
Agency—Sterling Adv. Agency

GAYNER GLASS WORKS 56
Agency—Sommers-Davis, Inc.

GIRDLER CORP. 27
Agency—Griswold-Eshleman Co.

GREAT LAKES CARBON CORP. 51
Agency—Davis-Parsons, Inc., Adv.

GREEFF & CO., R. W. B46
Agency—J. Hayden Twiss Adv.

HALL CO., THE C. P. 40
Agency—Cruttenden & Eger Adv.

INDOIL CHEMICAL CO. 26
Agency—McCann-Erickson, Inc.

INTERNATIONAL PAPER CO. 41
Agency—Picard Adv. Co.

LIQUID CARBONIC CORP., THE 44
Agency—Fletcher D. Richards, Inc.

LUCIDOL DIV., NOVADEL-AGENE CORP. T57
Agency—Landsheft, Inc.

LUMMIS CO., THE 6
Agency—Harris D. McKinny, Inc.

MATHIESON CHEMICAL CORP. ..... 2nd Cover
Agency—Doyle, Kitchen & McCormick, Inc.

McKESSON & ROBINS, INC. B4
Agency—Ellington & Co., Inc.

MINNEAPOLIS-HONEYWELL REGULATOR CO. 49
Agency—The Aitken-Kynett Co.

NATIONAL ANALINE DIV., ALLIED CHEMICAL & DYE CORP. 23
Agency—James J. McMahon, Inc.

OKLAHOMA PLANNING & RESOURCES BOARD 28
Agency—White Adv. Agency

OLDBURY ELECTROCHEMICAL CO. T45
Agency—Briggs & Varley, Inc.

ONYX OIL & CHEMICAL CO. 15
Agency—Asher, Godfrey & Franklin, Inc.

PACIFIC COAST BORAX CO. T4
Agency—Howard M. Irwin & Assoc.

PENNSYLVANIA INDUSTRIAL CHEMICAL CORP. 35
Agency—Walker & Downing

PRODUCTS PACKAGING, INC. 2
Agency—Kasper Adv.

RAYMOND BAG CO. 22
Agency—H. T. Shepherd Agency

ROHM & HAAS CO. 25
Agency—John Falkner Arndt & Co.

ROSENTHAL-BERCOW CO. T52
Agency—Sterling Adv. Agency

SUNDHEIMER CO., HENRY B57
Agency—Givaudan Adv., Inc.

TENNESSEE CORP., MINERAL SALTS DIV. 43
Agency—Crawford & Porter, Inc.

UNION CARBIDE & CARBON CORP., CARBIDE & CARBON CHEMICALS CO. .. 33
Agency—J. M. Mathes, Inc.

VIRGINIA SMELTING CO. 20
Agency—Gray & Rogers Adv.

WINTHROP-STEARNS, INC., SPECIAL CHEMICALS DIV. B45
Agency—J. M. Mathes, Inc.

WITCO CHEMICAL CO. ..... Back Cover
Agency—Hazard Adv. Co.

WYSSMONT CO. B52
Agency—Raf Adv., Inc.

tracers SECTION
(Classified Advertising)
H. E. Hilty, Mgr.

CHEMICALS: Offered/Wanted 59
EMPLOYMENT 58
EQUIPMENT: Used/Surplus New For Sale 58
Wanted 58
MANAGEMENT SERVICES 58
BUSINESS OPPORTUNITIES 59
PUBLICATIONS 58
SPECIAL SERVICES 58

ADVERTISING STAFF

ADVERTISING SALES MGR. ..B. E. Sawyer
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Dallas 1 .....James Cash, First National Bank Bldg., Prospect 7-5064

Los Angeles 17 .....Jos. H. Allen, 1111 Wilshire Blvd., Madison 6-4323

New York 36 .....Knox Armstrong, Robert S. Muller, L. Charles Todaro, 330 West 42 St., LOngacre 4-3000

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Boston 16 .....350 Park Square Building, Hubbard 2-7160

Detroit 26.....856 Penobscot Bldg., Woodward 2-1793

Pittsburgh 22.....738 Oliver Bldg., Atlantic 1-4707

St. Louis 8 .....3615 Olive St., Continental Bldg., Lucas 4867

SPECIALTIES . . . . .

General Motor's High Detergency blend and Alemite's C. D.-2 Concentrate. Most of these sell for about $1.25/pint, which is the suggested amount for addition to a crankcase of oil. Texaco's MDC retails for about $1.25-1.35/quart, also treats a crankcase of oil.

Additive concentrates like these meet a demand unfulfilled by the lubricant lines of most service stations. Although top-grade oils at a gas station (MS grade) are satisfactory for the majority of motorists' needs, the extra-heavy-duty oils, at probably 60-65¢/quart, would have too limited a market to pay most dealers. Some motorists, however, have need for high-detergency oils (to prevent valve lifter sticking, for example), which can be achieved by using the detergent concentrates.

•

Gas Preventer: Davison Chemical Corp. is now selling its Syloid AL-1 for incorporation into aluminum paints. The finely divided silica gel is said to eliminate the gassing problem—when hydrogen formed by moisture reacting chemically with the finely divided metallic aluminum bulges the ends of the container—by physical adsorption of the water before the reaction can take place. Davison advises a 1% by weight of paint (or roughly 3% by weight of aluminum pigment), although asphaltic paints require higher dosages.

•

Half-a-Dose: There may be less nose-wiping for the kiddies this year: Eli Lilly and Co. (Indianapolis) is producing a special dose of its antihistamine Co-Pyronil (a compound of Thenylpyramine, Pyrrobutamine, and Cyclopentamine Hydrochloride) for children who have the sniffles in the summertime. The dosage is just half adult recommendations.

•

Dry Bleach: Purex Corp (Southgate, Calif.) is now selling a powder form of a chlorine bleach. A heavy-duty product, it is not advised for silk, wool, or mixtures of synthetics. Two sizes of containers are available, 6½- and 12-oz.

•

Doomed Cedars: Santa Fe, N. M., is paying out nearly $25,000 to clear salt cedars from the San Marcial swamps. Planes will be used to spray herbicide on the trees, which have been soaking up valuable water. Its part of the U.S. Bureau of Reclamation's project for the New Mexico area; the bureau will spray about 7,500-8,000 acres.

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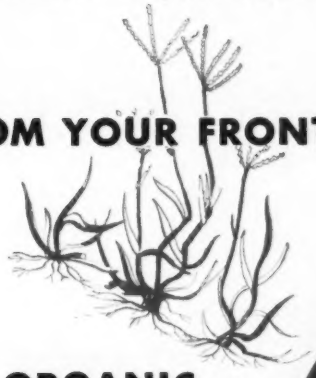
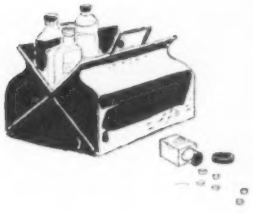


TO ORGANIC SYNTHESIS



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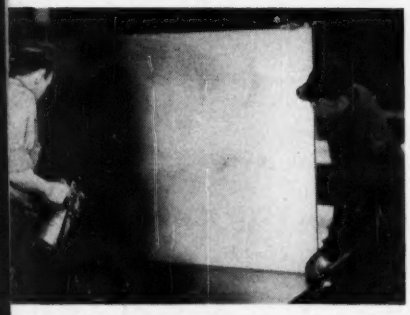

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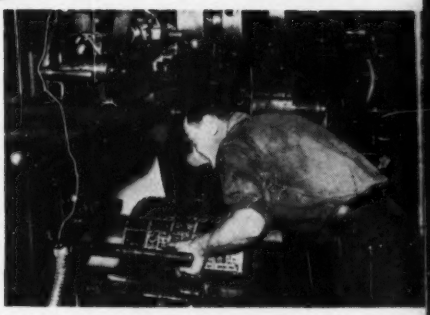

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